Maritime & Coastguard Agency

Safer lives, safer ships, cleaner seas

The Sport or Pleasure Vessel Code

The Safety of Small Vessels in Commercial Use for Sport or Pleasure - A Code of Practice

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Coastguard
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Safer Lives, Safer Ships, Cleaner Seas

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1 Foreword

Introduction

1.1 This **Code** applies to **Small Commercial Vessels** in **commercial use** for sport or pleasure that operate **at sea**, which do not carry **cargo**, and carry not more than 12 **passengers**.

1.2 This **Code** applies to such **vessels in commercial use** for sport or pleasure; vessels in all other forms of **commercial use** are subject to requirements in codes which are more appropriate to their use.

1.3 Independent rescue boats, when engaged in **commercial use**, may use the Rescue Boat Code instead of this **Code**, in accordance with MGN 466(M), **as amended**.

1.4 A **vessel** which does not carry out any of its operation on the water's surface (i.e. operates underwater) is outside of the scope of this **Code**.

1.5 A **vessel** which is a hovercraft is outside of the scope of this **Code**.

1.6 This **Code** is given legal effect by the Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 2025 ("the **2025 Regulations**"). The **2025 Regulations** set out the UK's regulatory framework for the certification and continued compliance of vessels to which the **2025 Regulations** apply. This **Code** accompanies the **2025 Regulations** providing details of the technical requirements for equipment, practices and procedures to be followed in relation to such vessels.

1.7 The **2025 Regulations** and this **Code** therefore provide a complete compliance regime for the types of vessels they are intended to cover. The owners and **Masters** of these vessels retain the right to show they have complied with all their obligations in full by meeting the equivalent standards in other relevant provisions such as for example, the Merchant Shipping (Load Line) Regulations 1998 (SI 1998/2241), instead of the **2025 Regulations** and this **Code**. However, the **Maritime and Coastguard Agency's** advice is that it would be easier to understand and apply the requirements by complying with the **2025 Regulations**. This may mean that **vessels** which comply with this **Code** may also additionally be issued with, for example, a UK Load Line Certificate.

1.8 This is the second edition of the **Code**. It replaces "The Safety of Small Commercial Motor Vessels" (1998) (The Yellow Code), "The Safety of Small Commercial Sailing Vessels" (1998) (The Blue Code), "The Safety of Small Vessels in Commercial Use for Sport or Pleasure Operating from a Nominated Departure Point" (2000) (The Red Code) and "The Code of Practice for Intended Pleasure Vessels in Temporary Commercial Use at Sea" (2019) (The IPV Code). This **Code** applies to **Small Commercial Vessels**, the keels of which are laid, or are at a **similar stage of construction**, on or after the date of entry into force of the **Code**. From that date, this **Code** supersedes the original Code(s), and also the use of **Marine Guidance Note MGN** 280(M) "Small Vessels in Commercial Use for Sport

and Pleasure, Workboats and Pilot Boats – Alternative Construction Standards" as applicable to **Small Commercial Vessels** in use for sport or pleasure.

1.9 Compliance with the **Code** in no way removes the need for **vessels** and/or **Masters** to comply with relevant bylaws made by either the local/navigation authority or the port/harbour authority for the area in which the vessel operates. Local authorities may, for instance, have powers to require **vessels** to have **passenger** liability and third-party insurance cover, and to set the level of that cover. Additionally, recognising that some **vessels** operate both **at sea** and on inland waterways, attention is drawn to the common approach to **vessel** safety adopted by the major UK Inland Navigation Authorities. **Owners/operators** of such **vessels** shall also comply with any applicable requirements of any relevant authority for the **area category of operation**. It should also be noted that local authorities may also have powers over the use of the foreshore and landing places, and to issue licenses for their use.

1.10 The following organisations participated in the Industry Working Group that reviewed and contributed to the drafting of this **Code**:

British Marine
HPi Verification Services
International Institute of Marine Surveyors
Lloyd's Register
Maritime and Coastguard Agency
MECAL
National Federation of Charter Skippers
Professional Boatman's Association
Professional Charter Association
Royal Yachting Association
RS Marine Group
SeaRegs Training Ltd.
Society of Consulting Marine Engineers and Ship Surveyors
Yacht Designers and Surveyors Association

1.11 This **Code** provides information needed for the design, construction, engineering, electrical systems, hull systems, fire protection and provision of firefighting, lifesaving, navigation, safety management systems and radio equipment to ensure the safety and protection of the **crew**, personnel, **passengers** and other marine users, and to maintain environmental standards. It also sets out the requirements for manning and the qualifications needed for the **crew**.

1.12 Designers, builders, **owners** and repairers of **vessels**, should pay special attention to the intended **area** and **category of operation**, as well as the weather and working conditions to which a **vessel** will be subjected when developing the design and selecting the materials and equipment to be used in its construction and maintenance.

1.13 Whilst all reasonable measures have been taken to develop standards which will result in the production of safe and seaworthy **vessels**, total safety **at sea** can never be guaranteed. As a consequence, owners and/or operators of a **vessel** are encouraged to take out a policy of insurance for all persons who are part of the

vessel's complement. It is advised such insurance provide cover against any foreseeable claims that may arise. It is advised that, if a policy of insurance is in force, a copy of the Certificate of Insurance be either displayed or available for inspection by persons on board the **vessel**.

1.14 The Small Sport or Pleasure Vessel Code **Certificate** is a UK issued certificate.

1.15 Non-UK Maritime Administrations or Port State Authorities are under no obligation to accept UK certificates for vessels in their waters, although some Maritime Administrations or Port State Authorities may accept UK certificates as evidence that a vessel is certified to an equivalent standard to their own. United Kingdom registered **vessels** may be subject to additional requirements of the port state or overseas administration when operating outside of United Kingdom waters, over and above this **Code**. It is the responsibility of **vessel owners/operator** to contact the administration controlling those waters for further information.

1.16 Guidance for **vessel owners/operators** wishing to operate their **vessels** outside the UK has been published as MGN 416 (M), **as amended**.

1.17 This **Code** may be applied voluntarily by **operators** of non-UK **vessels** based abroad. Such **vessels** may be issued with documents indicating compliance with the standards of the **Code** but will not be issued with UK certificates.

How to Use This Code

1.18 The **Code** consolidates all applicable requirements into a single document. Some of these requirements are made mandatory by the **2025 Regulations**. Some requirements are given legal effect by other Regulations.

1.19 This **Code** provides information in relation to many of the requirements applied by those other Regulations, but this information may not be definitive. Additional references and information are provided in **MIN** 724. **Vessel owners/operators** may need to consult those other Regulations and the associated guidance to ensure they are compliant. This **Code** does not provide information on legislation coming into force after the date of its publication. Statutory Instruments, **Merchant Shipping Notices**, **Marine Guidance Notes** and **Marine Information Notes** can be found on the **MCA** website.

Authorisation of Survey and Certification to Certifying Authorities

1.20 The **2025 Regulations** provide that the Secretary of State or a person authorised by the Secretary of State may be a **Certification Authority** for the purposes of the examination (survey) and certification of vessels to which this **Code** applies. In practice, the **MCA** acts on behalf of the Secretary of State as an Executive Agency of the Department for Transport and has responsibility and accountability for the UK Merchant Shipping Regulations and their enforcement. **Certifying Authorities** authorised by **MCA** have a written agreement which defines this relationship. As well as being an active **Certifying Authority** itself, the **MCA**, retains the responsibility for enforcing the **Code** and for auditing the other **Certifying Authorities**.

1.21 The authorisation of **Certifying Authorities** has been influenced by the requirement to have a local capability for the efficient handling of the needs of **owners/operators** of **vessels**. Authorised **Certifying Authorities** are permitted to charge for carrying out Code of Practice examination and certification functions in accordance with the terms of their authorisation. Arrangements for payment of any charges will be made directly between the **Certifying Authority** (or a **Certifying Authority's authorised person**) and the party requesting such services.

Health and Safety Regulations

1.22 The **owner** and/or **Master** of a **vessel** is responsible for the health and safety of workers and others on the **vessel**. The Merchant Shipping and Fishing Vessel (Health and Safety at Work) Regulations 1997 (SI 1997 No. 2962) apply where persons are employed on board a **vessel** (see Section 22 of this **Code**).

1.23 Every employer is to be aware of any risks affecting workers and ensure that appropriate measures are taken to minimise them through improving procedures or equipment where necessary. Employers must instruct those affected about the risks and how to ensure their own health and safety and the health and safety of others.

2 Definitions

This section contains the definitions that are used in and for the purposes of this **Code**. Where a term used in this **Code** is defined in this section it is printed in **bold**. The use of a term as defined in this section may also be used in other forms of the word (e.g. pluralised) and shall refer to the original defined term. All other terms and words are used in the sense ordinarily understood in nautical or general use in English.

References in this **Code** to provisions in the Merchant Shipping Act 1995, and related orders, regulations and other instruments include references to those provisions **as amended** or replaced by subsequent provisions.

"2025 Regulations" means the Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 2025;

"'A' Class" divisions are those divisions formed by bulkheads and decks which comply with the criteria described in **SOLAS** Chapter II-2 Regulation 3;

"Accommodation space" means any space, excluding a **machinery space**, which is enclosed on all sides by solid divisions, provided for the use of persons on-board;

"Activity related equipment" means any or all equipment that is carried on board for the sole use of persons on board, excluding equipment carried in any capacity for the business of the **vessel** or required to be carried to comply with the **Code**;

"Administration" means the Government of the State whose flag the **ship** is entitled to fly;

"Age Date" means the age of the **vessel** based on the recorded Year of Build date as shown on the **certificate** which will be taken from the 1st of January of the year recorded.

"Affiliated club" means a club which is affiliated to a national governing body of sport;

"Annual examination" means a general or partial examination of the **vessel**, its machinery, fittings and equipment, as far as can readily be seen, to ascertain that it had been maintained as required by the **Code** and that the arrangements, fittings and equipment provided are as documented in the **SCV2**. The hull, shell fittings, external steering and propulsion components of the **vessel** shall be examined out of the water at intervals not exceeding 5 years. The **Certifying Authority** may stipulate a lesser interval in consideration of hull construction material or at the age or the type and service of the **vessel**;

"Antarctic area" means the sea area south of latitude 60° S;

"Approved" means approved by or acceptable to the **Administration** under Merchant Shipping legislation, unless otherwise specified in the **Code**;

"Area category of operation" means the limit of operation of a **vessel** based on its **certificate**. The categories and their limitations are as per Section 3.10 of the **Code**;

"As amended" refers to any other document that replaces, revokes or amends the document that the term "as amended" follows;

"Authorised person" means a person who by reason of relevant professional qualifications, practical experience or expertise is authorised by the **Certifying Authority** chosen by the **owner/managing agent** to carry out examinations required under Section 4 of the **Code**;

"'B' class" divisions are those divisions formed by bulkheads, decks, ceilings or linings which comply with the criteria prescribed in **SOLAS** Chapter II-2 Regulation 3;

"Bareboat charter" means a **charter** for which the charterer provides the **Master** and the **crew**;

"Battery box" means a dedicated box of **steel or other equivalent material**, in which a battery is located;

"Battery-electric" means a **vessel** with a propulsion motor which can be powered by batteries only;

"Battery-hybrid" means a vessel with a **propulsion system** that can be powered by both fuel and batteries;

"Battery Management System" or "BMS" means an electronic device which performs the role of maintaining the safe charging and discharging of **lithium-ion batteries** or **lead-acid batteries**. A Battery Management System calculates **State Of Charge** and may calculate **State Of Health**, and communicates this to the **Power Management System**;

"Battery room" means a dedicated room of **steel or other equivalent material** with A0 fire integrity in which a battery is located;

"Blank" means a device or means of sealing skylights, windows and **portlights** (collectively referred to in this **Code** as windows) in the event of breakage of the glazing;

"Boat fitted with a buoyant collar" means a vessel of similar form to a **rigid inflatable boat**, where the inflatable tubes are replaced by solid, or hollow, buoyant sections. A boat fitted with a buoyant collar is not an **open boat**;

"Cargo" means all items which are transported by the **vessel** except:

fuel from the **vessel**,
ballast (either solid or liquid),
consumables to be used on board,
permanent outfit and equipment of the **vessel**,
ships stores and spare gear for the **vessel**,
crew and their personal baggage,
trainees and their personal baggage,
passengers and their personal baggage, and
activity related equipment;

"Categorised Waters" means waters designated as **categorised** in the Merchant Shipping (Categorisation of Waters) Regulations 1992, (SI 1992 No. 2356), and MSN 1837(M) – Categorisation of Waters, as amended;

"Cell" means a single electrochemical unit in its simplest form, typically packaged in metal cylinders; or flat, rectangular metal or **plastic** cases (prismatic **cells**), or heat-sealed foil pouches;

"Certificate" means the certificate appropriate to a **vessel** to which the **Code** is applied which The Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 2025 (SI 2025 No. 1195), **as amended**; require to have been issued (see section 1.1);

"Certificate of Competency" means the same as defined within The Merchant Shipping (Standards of Training, Certification and Watchkeeping) Regulations 2022, **as amended**;

"Certifying Authority" means either the Secretary of State, including the **MCA** acting on behalf of the Secretary of State, or anyone else authorised by the Secretary of State or the **MCA** acting on behalf of the Secretary of State (see list of organisations so authorised in **MIN** 724), for the purposes of:

.1 appointing persons to carry out examinations of **vessels** and issuing and signing Declarations of Examinations; and

.2 issue **Certificates** in accordance with section 3 or 4;

"Charging point" means the location on a **vessel** where charging cables can be connected to charge **lithium-ion batteries** or **lead-acid batteries** using shore-side power, a mother vessel or platform-based facility;

"Charter" means an agreement between the **owner/managing agent** and another party which enables that other party to operate the **vessel**, and the "charterer" is that other party. The **managing agent** may be the charterer;

"Cockpit" means a semi-enclosed, recessed area that is lower than the surrounding decks;

"Code" means this Code of Practice unless another Code is specified;

"Coded vessel" means a vessel which is in possession of a **certificate** and may operate commercially;

"COLREGS" means the Convention on the International Regulations for Preventing Collisions at Sea 1972, **as amended**, published by the **International Maritime Organization**;

"Commercial use" means use of a vessel other than as a **pleasure vessel**;

"Compartment" means all living and working spaces within the **watertight** or fire-resisting boundaries on any one level which have inter-communicating access;

"Competent harbour authority" has the same meaning as it has in section 1 of the Pilotage Act 1987;

"Competent Authority" in respect of manning qualifications (Appendix 5) means either the **MCA** or an organisation that issues **Certificates of Competence** and which has applied

for and been granted recognition by the **MCA** as having the appropriate technical and administrative expertise;

"Competent Person" means:

.1 in relation to fire extinguishing servicing (Section 16) has the same meaning as it does in BS 5306: Part 3; 2003 which is a person with the necessary training, experience, with access to the relevant tools, equipment and information, manuals and knowledge of any special procedures recommended by the manufacturer of the portable fire extinguisher, to carry out the relevant maintenance procedures;

.2 in relation to the Lifting Operations and Lifting Equipment Regulations 1998 (SI 1998/2307) (LOLER) and the Provision and the Use of Work Equipment Regulations 1998 (SI 1998/2306) (PUWER), is intended to mean a person possessing the knowledge or experience necessary for the performance of the duties under the LOLER and PUWER Regulations;

.3 with respect to Section 12 of this **Code**, means a person, appointed by the **Certifying Authority**, who by reason of relevant professional qualifications may review stability information booklets and/or carry out assessment of the **vessel's** stability information;

.4 with respect to all other sections of this **Code** means a person appointed by the **Certifying Authority** who has the necessary training and experience, or by reason of relevant professional qualifications, and with access to the relevant tools, equipment and information, is deemed competent to undertake the specific task;

"Compliance examination" means a **conformity inspection** and examination of the **vessel**, its machinery, fittings and equipment, by an **authorised person**, to ascertain that the **vessel's** structure, construction, fire protection, stability, machinery, fittings and equipment comply with the requirements of the **Code**. Part of the examination should be conducted when the **vessel** is out of the water. Part of the examination should be conducted when the **vessel** is in the water. For **vessels** of a design with no through hull fittings below the waterline the **Certifying Authority** may exercise discretion by conducting the **compliance examination** while the **vessel** is out of the water;

"Conformity inspection" means an inspection or certification to ensure that, where applicable, the **vessel**, its components, machinery and equipment have been declared to have been built in accordance with the relevant standards as provided by the **Code**. The **Certifying Authority** shall retain all records of the **conformity inspection** required to demonstrate compliance with the **Code**;

"Continuous radio watch" means the radio and listening watch concerned shall not be interrupted other than for brief intervals when the ship's receiving capability is impaired or blocked by its own communications or when the facilities are under periodical maintenance or checks (**SOLAS** IV Regulation 2);

"Control position" means, for a **motor vessel**, a conning position which is manned whilst the **vessel** is **underway**;

"Cooker" means a galley stove designed for cooking that makes use of burners, an oven, a boiler or any combination of these items;

"Crew" means a person employed or engaged in any capacity on-board a **vessel** on the business of the **vessel**. Persons onboard meeting the definition of a **Trainee** are not considered **crew**;

"Critical Downflooding Angle" means the angle at which the lower edge of the opening(s) which results in **critical downflooding** becomes immersed. All openings regularly used for **crew** access and for ventilation should be considered when determining the critical downflooding angle. Air pipes to tanks can, however, be disregarded. Where an appropriate ISO standard is used, the definition should be taken from those **standards** as applicable;

"Critical Downflooding" is deemed to occur when openings having an aggregate area, in square metres, greater than:

$$\frac{vessel's\ displacement\ in\ tonnes}{1500}$$

are immersed;

"Critical equipment" means any equipment which, if it fails would result in the unsafe operation of the **vessel**, and compromise the safety of other water users, and the safety of the marine environment;

"Daylight" means one hour before sunrise until one hour after sunset. In tropical waters this is to be from sunrise to sunset;

"Decked vessel" means a **vessel** with a continuous **watertight weather deck** which extends from stem to stern and has positive **freeboard** throughout, in any condition of loading of the **vessel**. Where an appropriate ISO standard is used, the definition should be taken from those **standards** as applicable;

"Deckhouse" means a **substantial enclosure** located on the **weather deck**;

"Design category" means a description of the wind and sea conditions for which a **vessel** is considered suitable under the Recreational Craft Regulations 2017 (SI 2017/737), **as amended**. See table below;

Design category	**Wind force (Beaufort scale)**	**Significant wave height (H 1/3, metres)**
A	Exceeding 8	Exceeding 4
B	**Up to**, and including, 8	**Up to**, and including 4
C	**Up to**, and including, 6	**Up to**, and including, 2
D	**Up to**, and including, 4	**Up to**, and including, 0.3

"DfT" means the UK Government's Department for Transport;

"Diesel" means Marine Gas Oil and refers to gas oil, diesel fuel and heating oil, light which are categorised under UN1202;

"Efficient" in relation to a fitting, piece of equipment or material means that all reasonable and practicable measures have been taken to ensure that it is suitable for the purpose for which it is intended;

"Emergency examination" means an examination equivalent to the **compliance examination** but which is carried out after the vessel has been involved in an incident to which regulation 22(2) of the Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 2025 applies;

"Engine space" and "engine box" means any space which contains internal combustion engine(s) or propulsion motor(s);

"Energy Management System" (EMS) means an electronic system which coordinates **lithium-ion battery** or **lead-acid battery** systems and communicates **State of Charge**, and power capability to the **Power Management System**. The EMS may exist either as a separate control system or be synonymous with the **Power Management System**;

"EPIRB" means an Emergency Positioning Indicating Radio Beacon;

"Existing vessel" means a **vessel** which is not a "**new vessel**";

"Favourable weather" with respect to a **small vessel** means conditions existing throughout a voyage or excursion in which the effects either individually or in combination of swell, height of waves, strength of wind and visibility cause no hazard to the safety of the **vessel**, including handling ability.

In making a judgement on **favourable weather**, the **Master** should have due regard to official weather forecasts for the **area category of operation** of the **vessel** or to weather information for the area which may be available from the Coastguard or similar coastal safety organisation;

"Float-free launching" is that method of launching a liferaft or **EPIRB** whereby the raft or **EPIRB** is automatically released from a sinking **ship** and is ready for use:

.1 for the purpose of this definition, "automatically released" means release from the liferaft/**EPIRB** stowage location and release of the painter line through use of a weak link or similar; and

.2 for the purpose of this definition "ready for use" means, in the case of a liferaft, the raft is inflated and ready for embarkation;

"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 (Resolution MSC.307(88)), **as amended**[1], including fire test procedures referred to in and relevant to the FTP Code, published by the **International Maritime Organisation**;

"Fully loaded condition" means where the vessel is carrying its full complement of **activity related equipment** equivalent to the items carried when fully operational, carrying the **maximum number of persons** the vessel is permitted to carry, and 100% consumables.

"GNSS" means global navigation satellite systems, including GLONAS, GPS and Galileo systems;

"Grab bag" means an easily accessible, transportable and watertight bag or other portable container containing emergency supplies and equipment to aid survival in the event of an emergency evacuation of the **vessel**;

"Harmful substances" means those substances which are identified as marine pollutants;

"Hazardous space" means a space or **compartment** where combustible or explosive gases or vapours are liable to accumulate in dangerous concentrations, and are divided into three zones (refer to IEC 60079-10-1:2020 for details):

.1 Zone 0 – a space where an explosive atmosphere is present frequently or for long continuous periods;

.2 Zone 1 – a space where an explosive atmosphere is present occasionally during normal operations; or

.3 Zone 2 – a space where an explosive atmosphere is present rarely, and only occurs for short periods, during normal operations;

"Heating appliance" means an appliance designed to heat air, water or a solid medium by means of combusting **liquid fuel**;

"Height of side" with respect to an **open boat** means the distance between the waterline and the lowest point of the gunwale. The clear height should be measured to the top of the gunwale or capping or to the top of the wash strake if one is fitted above the capping;

"High Holding Power (HHP) Anchor" means an anchor that can be shown to have holding powers of at least twice those of a standard stockless anchor of the same mass;

"High speed" means an operating speed of 20 knots or more;

"High voltage" means an electrical system with a minimum output of 1000V AC or 1500V DC (See **MIN** 724);

"High voltage interlock loop" (HVIL) means a system which performs the role of checking all **high-voltage** connections are safely in place before allowing the contactors, or other

[1] The International Code for Application of Fire Test Procedures: https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MSCResolutions/MSC.307(88).pdf

key parts of a high-voltage system, to be engaged. A HVIL also checks that the battery is disconnected from the main electrical system before charging is initiated;

"Immersion suit" means a protective suit which reduces the body heat-loss of a person wearing it in cold water and complies with the requirements of the Merchant Shipping (Marine Equipment) Regulations 2016 (MER);

"IMO" means the International Maritime Organization;

"Inflatable Boat" means a **vessel** which is not an **open boat**, which attains its form through inflatable tubes only, which are not attached to a solid hull;

"Intermediate examination" means a general or partial examination of the **vessel**, its machinery, fittings and equipment, as far as can readily be seen, to ascertain that it had been maintained as required by the **Code** and that the arrangements, fittings and equipment provided are as documented in the **SCV2**;

"International voyage" means a voyage between:

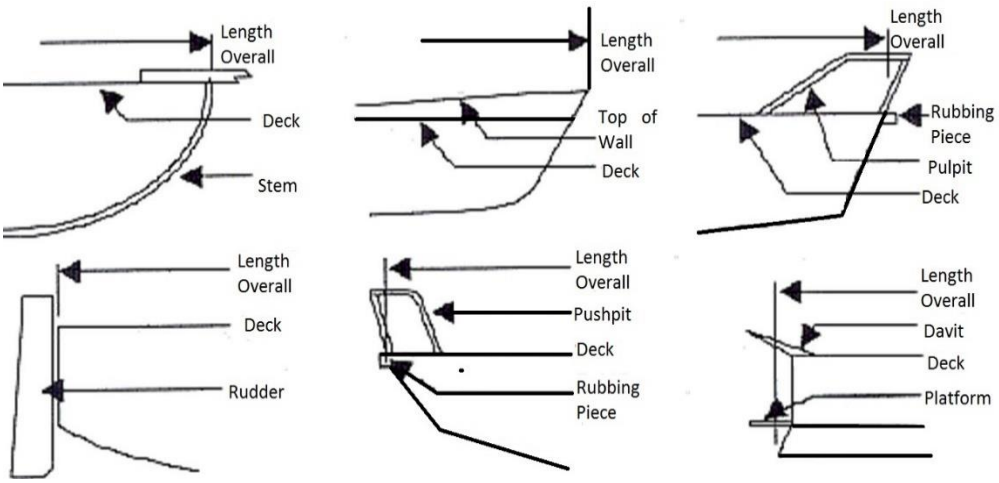
.1 a port in the United Kingdom and a port outside the United Kingdom; or

.2 a port in a Contracting State other than the United Kingdom and a port in any other State or territory, whether a Contracting State or not, which is outside the United Kingdom;

"Land" means the seashore above the line of mean high water mark;

"Lead-acid battery" means a rechargeable battery which uses lead and sulphuric acid;

"Length" means the overall length from the foreside of the foremost fixed permanent structure to the aft side of the aftermost fixed permanent structure of the **vessel**. With regard to **inflatable boats**, **rigid inflatable boats**, or **boats fitted with a buoyant collar**, length should be taken from the foremost part of the tube or collar, to the aft most part of the tube or collar;



"Lifting device" means a device used for lifting or lowering loads, and includes its attachments used for anchoring, fixing, supporting the device and connections between device and load;

"Liquid fuel" means fuel that is liquid at atmospheric pressure and used for heating or for a **cooker**;

"Lithium-ion battery" means a rechargeable battery containing lithium in any chemical form;

"Load Line Assigning Authority" means an Authorised Organisation listed in MSN 1672 (M+F) Ship Inspection and Survey Organisations, **as amended**;

"Load line length" in relation to a **ship** means the greater of the following distances (see **MIN** 724):

1. 96% of the total length on a waterline at 85% of the least moulded depth measured from the top of the keel; or

2. the length from the fore-side of the stem to the axis of the rudder stock on that waterline.

Where the stem contour is concave above the waterline at 85% of the least moulded depth, both the forward terminal of the total length and the fore-side of the stem respectively shall be taken at the vertical projection to that waterline of the aftermost point of the stem contour (above that waterline). In **ships** designed with a rake of keel the waterline on which this length is measured is that parallel to the designed waterline;

"Load-bearing division" is a deck or bulkhead including stiffeners, pillars, stanchions and other structural members which, if eliminated, would adversely affect the designated structural strength of the **ship**;

"Long international voyage" means any **international voyage** where a **vessel** is more than 200 **miles** from a **safe haven**, or the length of the voyage from departure to arrival more than 600 **miles**;

"Low flashpoint fuel" means gaseous or **liquid fuel**, other than petrol or **diesel**, having a flashpoint lower than 60°C;

"Lower Explosive Limit" or "LEL" means the lowest concentration required of a gas or vapour from which ignition or an explosion can occur;

"Machinery space" means any space which contains propelling machinery, propulsion motors, boilers, oil fuel units, steam, internal combustion engines, generators and **liquid fuelled heating appliance(s)**. Spaces containing machinery of a unique or novel design may be subject to special consideration by the **Administration**;

"Making way" means a **vessel** which is moving through the water;

"Managing agent" means a person appointed to act on behalf of the **vessel owner** or the person that operates the **vessel**;

"Marine Information Note" (MIN) means a Note described as such and issued by the **MCA**, and reference to a specific MIN includes reference to any MIN amending or replacing that Note which is considered by the Secretary of State to be relevant from time to time;

"Marine Guidance Note" (MGN) means a Note described as such and issued by the **MCA**, and reference to a specific MGN includes reference to any MGN amending or replacing that Note which is considered by the Secretary of State to be relevant from time to time;

"Maritime and Coastguard Agency" (MCA) means the Maritime and Coastguard Agency, an executive agency of the Department for Transport, and any superseding and preceding organisation;

"Maritime Labour Convention" "MLC" means the Maritime Labour Convention 2006 which came into force for the United Kingdom on 7 August 2014, setting out the minimum working and living rights for **seafarers**;

"MARPOL" means The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating hereto, **as amended**, published by the **International Maritime Organization**;

"Master" has the same meaning as "master" provided by section 313 of the Merchant Shipping Act 1995 (Ch. 21)[2];

"Manufacturer's recommended maximum load" means, where applicable and according to ISO 14946, excluding the mass of fixed fuel and water tanks when full, the maximum total permissible weight of persons and their effects and **activity related equipment**, i.e. diving equipment. The **maximum permissible weight** must not exceed that as provided on the Builder's Plate (suitcase symbol and person symbol). For **vessels** with an outboard engine, the mass of the engine shall be included within this;

"Maximum permissible weight" means the maximum total permissible weight of persons and their effects, **cargo**, and **activity related equipment**, e.g. diving equipment;

"Maximum number of persons" means the maximum number of persons the vessel is certificated under the **Code** to carry on board;

"MCA approved" means a training provider or training course which has been audited by the **MCA**, where the **MCA** is satisfied that both the training centre and training course meet a specified standard, and that the training centre delivering course holds a valid **MCA** approval certificate for that course;

"MER" means the Merchant Shipping (Marine Equipment) Regulations 2016;

"Member's Club" means an affiliated club under the rules of which:

(a) a person may not -

[2] Section 313 of the **Merchant Shipping Act** 1995 provides that "master" includes every person (except a pilot) having command or charge of a ship and, in relation to a fishing vessel, means the skipper.

(i) be admitted to membership; or

(ii) be admitted as a candidate for membership, to any of the privileges of membership,

without an interval of at least two days between their nomination or application for membership and their admission.

(b) a person who becomes a member without prior nomination or application may not be admitted to the privileges of membership without an interval of at least two days between his becoming a member and his admission;

(c) any profits of the club may not be distributed to the members of the club;

"Merchant Shipping Notice" (MSN) means a Notice described as such as issued by the **MCA**, and reference to a specific MSN includes reference to any MSN amending or replacing that Notice which is considered by the Secretary of State to be relevant from time to time;

"Mile" means a nautical mile of 1852 meters;

"Modification" means any change to the **vessel** or its equipment that would alter the **vessel's** compliance with statutory requirements, or that would require an amendment to its statutory certification, including the **SCV2**;

"Motor vessel" means a power-driven **vessel** which is not a **sailing vessel**;

"Multihull vessel" means any **vessel** which in any normally achievable operating angle of trim or heel, has a rigid hull structure which penetrates the surface of the sea over more than one separate or discrete area;

"National Governing Body" means the authority for a sport or activity conducted on or in water which is recognised by:

(a) Sport England;

(b) Sport Northern Ireland;

(c) Sport Wales;

(d) sportscotland;

and includes any body which supersedes a body listed in (a) to (d);

"New vessel" means a **vessel**, the keel of which was laid, or the construction or lay-up was started, on or after the first day on which this **Code** came into force, or any **vessel** where there has not been a valid **certificate** for the previous five years;

"Non-coded vessel" means a **vessel** that is not a "**coded vessel**";

"Open boat" means a **vessel** which within its **length** is:

.1 not fitted with a **watertight weather deck**;

.2 is fitted with a **watertight weather deck** over part of its **length**; or

.3 is fitted with a **watertight weather deck** over the whole of its **length** but the **freeboard** to the deck does not meet the minimum requirement (Section 12);

"Owner/operator" means the **vessel** owner, **managing agent**, company or other person operating the **vessel** on the owner's behalf, assuming responsibility for compliance of the **vessel** with this **code**;

"Passenger" means any person carried on a **ship** except:

(a) a person employed or engaged in any capacity on the business of the **vessel**;

(b) a person on board the **vessel** 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;

"Plastic(s)" means both thermoplastic and thermosetting plastic materials, with or without reinforcement, such as uPVC and fire reinforced plastics (FRP). The definition includes synthetic rubber and materials of similar thermo/mechanical properties;

"Pleasure vessel" as defined in the Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 2025 (SI 2025 No. 1195), **as amended**, means:

(a) any **vessel** which at the time is being used is:

(i) in the case of a **vessel** wholly owned by:

(aa) an individual or individuals, used only for the sport or pleasure of the owner or the immediate family or friends of the owner;

(bb) a body corporate, used only for sport or pleasure and on which the persons on board are employees or officers of the body corporate, or their immediate family or friends; and

(ii) on a voyage or excursion which is one for which the owner does not receive money for or in connection with operating the **vessel** or carrying any person, other than as a contribution to the direct expenses of the operation of the **vessel** incurred during the voyage or excursion; or

(b) any vessel wholly owned by or on behalf of a **member's club** formed for the purpose of sport or pleasure which, at the time it is being used, is used only for the sport or pleasure of members of that club or their immediate family, and for the use

of which any charges levied are paid into club funds and applied for the general use of the club.

where, in the case of any **vessel** referred to in paragraph (a) or (b), no other payments are made by or on behalf of users of the **vessel**, other than by the owner; and in this definition "immediate family" means, in relation to an individual, the spouse or civil partner of the individual, and a relative of the individual or the individual's spouse or civil partner, and "relative" means brother, sister, ancestor or lineal descendant;

"Power Management System" means an electronic device which automatically maintains the balance between power supply and demand;

"Propulsion system" means all components that convert energy into vessel movement;

"Recess" means an indentation or depression in a deck and which is surrounded by the deck and has no boundary common with the shell of the **vessel**. Where an appropriate ISO standard is used, the definition should be taken from those **standards** as applicable;

"Recognised Organisation" means those organisations authorised in accordance with the **IMO** Code for Recognized Organizations ("the RO Code") (MSC.349(92), MEPC.237(65)), The Merchant Shipping (Recognised Organisations) (Amendment) (EU Exit) Regulations 2019 and MSN 1672 (M+F) - Ship Inspection and Survey Organisations, **as amended**;

"Renewal examination" means an equivalent examination to the **compliance examination**;

"Rigid inflatable boat; means a **vessel** with inflatable tubes, attached to a solid hull. The tubes are inflated during normal craft operation. A rigid inflatable boat is not an **open boat**;

"Room sealed type" means a type of appliance where the gas flames are totally isolated and where the air supply and combustion gas outlets are piped to open air;

"Safe haven" means a harbour or shelter of any kind which affords safe entry and protection from the force of weather;

"Safe state" means the set minimum risk condition(s) defined by the **vessel owner/operator** to minimise risks to people, environment(s) and asset(s);

"Sailing vessel" means a **vessel** for which the primary means of propulsion is wind power and for which any motor provided is an auxiliary means of propulsion and/or which possesses a non-dimensional ratio of (sail area) divided by (volume of displacement)$^{2/3}$ of more than 7;

"Sea area A1" means an area within the radiotelephone coverage of at least one very high frequency (VHF) coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government;

"Sea area A2" means an area, excluding sea area A1, within the radiotelephone coverage of at least one medium frequency (MF) coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government;

"Sea area A3" means an area, excluding sea areas A1 and A2, within the coverage of a recognized mobile satellite service supported by the ship earth station carried on board, in which continuous alerting is available;

"Sea area A4" means an area outside of sea areas A1, A2 and A3;

"Seafarer" means any person, including the **Master**, who is employed or engaged or works in any capacity on board a **ship** on the business of the **ship** and whose normal place of work is on a **ship**. A **passenger**, **trainee** or other person paying to be on board are not a seafarer;

"Ship" means a ship as defined in section 313 of the Merchant Shipping Act 1995;

"Ships stores" means materials which are on board a **ship** for the upkeep, maintenance, safety, operation or navigation of the **ship** (except for fuel and compressed air used for the **ship's** primary propulsion machinery or fixed auxiliary equipment) or for the safety or comfort of the **ship's passengers** or **crew**. Materials intended for use in commercial operations by a **ship** are not considered as ships' stores;

"Shore charging" means where charging cables are connected to a **vessel's charging point** to charge batteries using shore-side power;

"Similar stage of construction" means a stage at which:

(a) construction identifiable with a specific **vessel** begins; and

(b) assembly of that **vessel**, comprising at least 1% of the estimated mass of all structural material, has commenced;

"Single handed operation" is considered to be taking place when either:

.1 there is only one person on board the **vessel**; or

.2 there is a **Master** on board with no other **crew** or persons on board capable of assisting the **Master** in an emergency;

"Sister vessel" means one of two or more **vessels** built to the same design, dimensions, general arrangement, structural arrangement and construction;

"Skipper has the same meaning as "Master"; and any reference in the **Code** to the skipper must be read as having the effect that any obligations on the **master** in either the **2025 Regulations** or this **Code** are equally the obligations on the **skipper**;

"Small Commercial Vessel" means a **small vessel** that is certificated under this **Code**;

"Small vessel" means a **vessel** of less than 24 meters in **load line length**, or in the case of a **vessel** the keel of which was laid or which was at a **similar stage of construction** before 21st July 1968, less than 150 **tons** and in this definition; "tons" means the gross tons, measured in accordance with the Merchant Shipping (Tonnage) Regulations 1967 as in force on 20th July 1968;

"SOLAS" means the International Convention for the Safety of Life at Sea, 1974, and its Protocol of 1988, **as amended**, published by the **International Maritime Organization**;

"Special area" means a sea area where for recognised technical reasons in relation to its oceanographic and ecological condition and to the particular character of its traffic the adoption of special mandatory methods for the prevention of sea pollution is required, as defined in **MARPOL** Annex I and Annex V;

"Standard" means those recognised such as BS (British Standard), EN (European Standard accepted by the European Committee for Standardization, CEN), IEC (International Electrotechnical Commission) and ISO (International Organisation for Standardization) and includes any standards which amend or replace them or an equivalent standard;

"State of Charge" or "SOC" means battery state of charge which refers to the percentage of overall battery capacity remaining before the battery is exhausted;

"State of Health" or "SOH" means battery state of health which refers to the percentage of original battery capacity stored when an aged battery is fully charged;

"Steel or other equivalent material" means any non-combustible material which, by itself or due to insulation provided, has structural and integrity properties equivalent to steel at the end of the applicable exposure to the standard fire test[3]

"Steering position" means, for a **sailing vessel**, an area from which the **vessel** is steered whilst the vessel is **underway**;

"Substantial enclosure" means an area of the **vessel** which is enclosed on all side by solid divisions in line with a definition of an **accommodation space** and provides protection for persons on board;

"SCV1" means the form for an Application for Examination of a **vessel**;

"SCV2" means the report form for a **Compliance Examination** and Declaration;

"Thermal runaway" means where a battery **cell** undergoes an exothermic reaction, where the heat generated is greater than the heat dissipated;

"To sea" and "at sea" means beyond the extent of **categorised waters**, as defined in MSN 1837 (M) "Categorisation of Waters", **as amended**;

"Towing" means the act of towage of one or more vessels or floating objects by another **vessel** where the towing **vessel** and the towed vessel(s) or floating object(s) are connected:

1. by a towline about which the **towing vessel** is free to manoeuvre such that there is a risk of girting, where if the towline is attached towards amidships, it could adopt an angle to the **towing vessel** and provide a capsizing moment;

[3] E.g., aluminium alloy with appropriate insulation being such that the temperature of the inward faces of the **battery box** or **battery room** does not rise more than 200°C above the ambient temperature in 30 minutes or 60 minutes as determined by the fire endurance.

2. side by side with the **towing vessel** firmly attached alongside the towed **vessel** or floating object, so as to be able to manoeuvre as if one **vessel**;

3. fore and aft with the bow of the **towing vessel** firmly attached to the stern of the towed vessel or floating object, so as to be able to push, pull or manoeuvre as if one vessel;

"Trainee" means a person on board for the sole purpose of:

.1 obtaining instruction in the principles of responsibility, resourcefulness, loyalty and team endeavour; and/or

.2 instruction in navigation and seamanship, marine engineering or other shipboard related skills;

and:

.3 is engaged onboard in a supernumerary capacity that does not form part of the **crew** in order for a **vessel** to be safely manned and is not responsible for any safety critical duties.[4]

"UKCA" means UK Conformity Assessed. UKCA marking is a certification mark that indicates conformity with the applicable requirements for products sold within Great Britain;

"Underway" has the same meaning as in Rule 3(i) of **COLREGS**;

"United Kingdom ship" has the same meaning as in section 85(2)[5] of the **Merchant Shipping Act** 1995 (Ch.21). "United Kingdom vessel" has the same meaning;

"Up to" means up to but not including the maximum value, e.g. up to 20 **miles** means to just less than 20 **miles**;

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[4] In cases where this definition is not met, the trainee should be considered as **crew** (even if they are trainee crew in the sense of crew undergoing training) and thus should be certificated in line with the requirements of the Code.

[5] Section 85(2) of the **Merchant Shipping Act** 1995 provides that in section 85(1) of the **Merchant Shipping Act** 1995 "**United Kingdom ship**" means a ship which—

(a) is registered in the United Kingdom; or

(b) is not registered under the law of any country but is wholly owned by persons each of whom is—

(i) a British citizen, a British Dependent Territories citizen or a British Overseas citizen, or

(ii) a body corporate which is established under the law of a part of the United Kingdom and has its principal place of business in the United Kingdom.

"Vessel" means any **ship**[6] to which this **Code** and the Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 2025 (SI 2025 No. 1195), **as amended** applies;

"Vessel in commercial use" means any **vessel**, but also includes any **pleasure vessel** while it is in possession of a broker, **ship** repairer or other such person for the purposes of their business;

"Void space" is any space, having no practical function on board the **vessel**, not capable of readily collecting water under normal operating circumstances;

"Watertight" means capable of preventing the passage of water in either direction;

"Weather deck" means the main deck when exposed to the elements;

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

"Wheelhouse" means a substantial enclosure incorporating the **control position** or **steering position**.

[6] The definition of "ship" provided in section 313 of the Merchant Shipping Act 1995 is – "Ship" includes every description of vessel used in navigation.

3 Application, Interpretation and Certification

The purpose of this section is to set out the application of this **Code** to **Small Commercial Vessels** and the process for certification of these **vessels**.

3.1 Application

3.1.1 This **Code** applies to **Small Commercial Vessels** in **commercial use** for sport or pleasure operating **at sea**. It applies to **vessels** which do not carry **cargo**, and carry not more than 12 **passengers**. It applies to **United Kingdom (UK) vessels** wherever they may be, and to non-United Kingdom (UK) vessels operating from UK ports whilst in UK waters.

3.1.2 The **Code** does not apply to any vessels that operate underwater, or hovercraft.

3.1.3 **New vessels** shall comply with the applicable requirements of this **Code.**

Existing vessels with a valid Small Commercial Vessel Certificate, issued under the Codes of Practice named in Section 1.8 shall comply with the applicable requirements set out in this **Code** on the date or at the time of the examination specified in Appendix 12.

3.1.4 A **vessel** that has been previously certificated under the Codes of Practice named in Section 1.8 but which certification has lapsed, been suspended or otherwise invalidated for fewer than 5 years, may be certified provided it complies with the requirements of the version of the Code under which it was most recently certified, as set out in this **Code**. Documentary evidence of the previous certification shall be presented and any **modifications** during the uncertified period be declared.

3.1.5 A **vessel** which is certificated under this **Code** is not regulated by the Merchant Shipping (High Speed Craft) Regulations 2022 (SI 2022/1219) notwithstanding that it fulfils the criteria for a high speed craft as defined in those Regulations.

3.2 Limitations

3.2.1 The **Code** sets out the requirements for safety of a **vessel** and any persons on board. Operational activities undertaken from that vessel are not considered under the **Code**.

3.3 Interpretations of the Code

3.3.1 Where a question of application of the **Code** arises, the **vessel owner/operator** shall in the first instance seek clarification from the **Certifying Authority**.

3.3.2 In situations where clarification is not possible, the **Certifying Authority** shall request in writing an interpretation from the **Administration**.

3.4 Equivalent Standards

3.4.1 Where the **Code** requires that a particular fitting, material, appliance or apparatus must be fitted on or carried in a **vessel**, any particular arrangement be made on,

or in relation to, a **vessel**, or any particular provision be made in relation to a **vessel**, the **Administration** may permit any other fitting, material, appliance or apparatus to be provided or carried, or any other provision to be made, provided the **Administration** is satisfied by trials or otherwise that the alternative is at least as effective as that required by the **Code**.

3.4.2 Where the **vessel owner/managing agent** wishes to use an equivalent means of compliance to the **Code**, the **Certifying Authority** shall, on behalf of the **vessel owner/managing agent**, submit a request for equivalence to the **Administration** who may consult with others as it deems appropriate.

3.4.3 Any equivalences agreed for the **vessel** by the **Administration** shall be recorded on the **SCV2** and a copy of the equivalence kept by the **Certifying Authority** on the **vessel's** file.

3.5 Maintaining and Operating the Vessel

3.5.1 It is the responsibility of the **vessel owner/managing agent** to ensure that a **vessel** is properly maintained, examined, certified and manned in accordance with the **Code**, the arrangements as documented in the **SCV2** and any conditions stated on the **vessel's Certificate**.

3.5.2 It is the responsibility of the **vessel owner/managing agent** to ensure that the **vessel** is maintained in accordance with manufacturer's recommendations and best engineering practice.

3.5.3 A **vessel**, its machinery, equipment and fittings shall be designed to be **efficient** for its intended purpose, use and be suitable for the intended **area category of operation** of the **vessel**. This includes an ongoing maintenance and inspection regime that ensures continued effective operation.

3.5.4 In determining whether an item is **efficient**, the **Certifying Authority** may rely on compliance with **standards** as recognised by the **Administration**. Where a **Certifying Authority** does not rely on a **standard**, it shall clearly document the approval process used and the rationale and justification for not using the **standard**.

3.5.5 Where an **existing vessel** has new equipment installed, or undergoes **modification**, the requirements of this **Code** relevant to the change, shall be applied as far as is practicable.

3.5.6 The **Administration**[7] may inspect a certificated **vessel** at any time and the **Administration** may also appoint the **vessel's Certifying Authority** to examine the **vessel** at any time.

3.5.7 If for any reason the **vessel** does not continue to comply with any of the requirements of the **Code**, the **vessel owner/managing agent** shall notify the **Certifying Authority** as soon as reasonably practicable. See Section 4.10.

[7] Merchant Shipping Act 1995 (Ch. 21), section 258.

3.5.8 The **vessel owner/managing agent** shall notify and seek confirmation from the **Certifying Authority** that any change or **modification** to the **vessel** or its equipment covered by the **Code** is compliant with the requirements of the **Code** prior to implementing any change or **modification**. The **vessel owner/operator** shall notify and seek approval from the **Certifying Authority** prior to implementing any change or **modification** to the **vessel** or its equipment which is covered by the requirements of the **Code**.

3.6 Accident Reporting

3.6.1 The **vessel owner, Master/managing agent** has a statutory duty to report accidents. The statutory requirements are contained in the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 (SI 2012/ No. 1743), **as amended**. (See **MIN** 724).

3.6.2 Where a **vessel** is involved in an accident or incident resulting in damage affecting the safety of that **vessel**, the **vessel owner/managing agent** shall notify the **Certifying Authority** as soon as reasonably practicable, explaining the circumstances by which the **vessel** became damaged. The **Certifying Authority** may take action as deemed appropriate, which may include a full or partial examination of the **vessel**. See Section 4.8.

3.7 Unique Identification Number

3.7.1 When a **vessel** is certificated for the first time under this **Code**, it will be assigned a Unique Identification Number by the **Certifying Authority**, in accordance with the standard format set out below.

3.7.2 The Unique Identification Number is formed of 12 digits, with each digit given a specific role:

The first (alpha) digit relates to the identity of the initial **Certifying Authority**.

Digit	Identity	Digit	Identity
B	Bureau Veritas	N	DNV - Maritime
C	International Institute of Marine Surveying	P	Burness Corlett Three Quays (Southampton) Ltd.
D	Maritime & Coastguard Agency	R	Royal Yachting Association
I	RINA Services S.p.A.	S	Society of Consulting Marine Engineers and Ship Surveyors
L	Lloyd's Register EMEA	Y	Yacht Designers and Surveyors Association
M	MECAL Ltd		

The second and third (numeric) digits give the last two digits of the year of **Certifying Authority** receipt of the completed **SCV2**.

The fourth and fifth (alpha) digits denote the **vessel** type.

Digits	Vessel Type	Digits	Vessel Type
MV	Motor Vessel	SV	Sailing Vessel

The sixth, seventh and eighth (numeric) digits relate to the **length** of the **vessel** rounded down to the nearest metre, i.e. 7.95 metres would be '007'.

The ninth to twelfth (numeric) digits are a unique sequential identifier, applicable within the year of initial certification denoted by the second and third digits. The sequential number should lie within a band of 0001-9999.

3.7.3 An example Unique Identification Number is:

D22SV0120001

which denotes that this is the first **vessel** surveyed and certificated by the **Maritime and Coastguard Agency** in the year 2022, that it is a **sailing vessel**, and it is between 12 & 13 metres in **length**.

3.7.4 A **vessel** shall continue to hold the Unique Identification Number assigned to it at initial certification for the lifetime of that **vessel,** regardless of any subsequent transfer of **Certifying Authority**, unless it has:

.1 been modified so that its **length** has changed; or

.2 changed use, i.e. from Motor Vessel (MV) to Workboat (WB).

In such cases only the relevant part of the Unique Identification Number should change.

3.8 Certification

3.8.1 To be issued with a **Certificate** for a particular **Area Category of Operation**, a **vessel** shall comply with all the requirements of the **Code** for that **Area Category of Operation**, and the prescribed fee has been paid to the **Certifying Authority**.

3.8.2 The validity of a **certificate** is conditional upon the **vessel** being maintained, equipped and operated in accordance with the documented arrangements contained in the **SCV2**. Proposals to change any such arrangements shall therefore be agreed in writing with the **Certifying Authority** before a change is implemented. A copy of the written agreement detailing change(s) shall be appended to the **SCV2**.

3.8.3 The **Certificate** will cease to be valid if the **intermediate examination** or **annual examination** as appropriate, including examination of the **vessel** out of the water, are not completed within the periods specified in the **Code**. Where an examination has been requested more than one month after the required specified period, the **vessel owner/managing agent** shall refer to the **Certifying Authority** to arrange an appropriate examination type.

3.8.4 Where a **vessel** is sold, the **Certificate** issued by the **Certifying Authority** on the basis of the **compliance examination**, any **annual examination** reports and owner's declarations documented in the **SCV2** are cancelled automatically.

3.8.5 A new **Certificate** will be issued to the new **vessel owner/managing agent** on receipt of an appropriate application form. The **Certifying Authority** will decide the extent of any examination of the **vessel** required before a new **Certificate** is issued.

3.8.6 The **Administration** shall be informed by the **Certifying Authority** when a **Certificate** is issued, renewed, cancelled or modified. When a **Certificate** is cancelled the circumstances shall be reported for action to be taken as deemed necessary.

3.8.7 The **vessel owner/managing agent** may transfer to another **Certifying Authority** at any time. The unique number allocated by the first **Certifying Authority** is not to be changed.

3.8.8 On transfer of a **vessel** to a different **Certifying Authority**, the losing **Certifying Authority** shall provide information to the gaining **Certifying Authority** of the status of declarations, examinations and inspections; particularly with regard to any areas where the **vessel** may be deficient, or a dispute exists. The extent of any examination required upon transfer, when the **vessel** is between examinations, in the examination regime in section 4.3 is to be decided by the new **Certifying Authority**.

3.8.9 It is for the losing **Certifying Authority** to decide if it should refund any portion of the fees already paid.

3.9 Dual Certificated Vessels, and Vessels Changing Operational Type or Area Category of Operation

3.9.1 A **vessel** certified under Sections 3.1.3. or 3.1.4 that changes to a more onerous operational type or **area category of operation**, must comply with the section(s) of this **Code** applicable to the new operational type or **area category of operation**.

3.9.2 A **vessel** operating in a less onerous **area category of operation** than that for which it is certificated, may meet the requirements of the less onerous **area category of operation**.

3.10 Area Category of Operation

3.10.1 A **vessel** may be issued with a **Certificate** which permits it to operate in one of the following areas:

Area Category 6 – within 3 **miles** of **land** and not more than 3 **miles** radius from either the point of departure **to sea** or the seaward boundary of **categorised waters**, in **favourable weather** and **daylight**;

Area Category 5 – within 3 **miles** of **land** and not more than 3 **miles** radius from either the point of departure **to sea** or the seaward boundary of **categorised waters** in **favourable weather**;

Area Category 4 – **up to** 20 **miles** from a **safe haven**, in **favourable weather** and in **daylight**;

Area Category 3 – **up to** 20 **miles** from a **safe haven**;

Area Category 2 – **up to** 60 **miles** from a **safe haven**;

Area Category 1 – **up to** 150 **miles** from **safe haven**;

Area Category 0 – unrestricted service.

3.10.2 **Vessels** which have valid certification for a specific **design category** under the Recreational Craft Regulations (RCR) will be considered suitable for operation in the corresponding **area category of operation**, as outlined in Table 3.10.2.

Table 3.10.2 – Area Categories of Operation, RCR Categories and operating conditions

Area Category of Operation	RCR Design Categories (minimum)	Wind force (Beaufort scale)	Significant wave height (H 1/3, metres)
0	A	Exceeding 8	Exceeding 4
1	A	Exceeding 8	Exceeding 4
2	B	**Up to**, and including, 8	**Up to**, and including, 4
3	B	**Up to**, and including, 8	**Up to**, and including, 4
4	C	**Up to**, and including, 6	**Up to**, and including, 2
5	C	**Up to**, and including, 6	**Up to**, and including, 2
6	C	**Up to**, and including, 6	**Up to**, and including, 2

3.10.3 **Vessels** operating in **area category of operation** 2, 3, 4, 5 or 6 may, depending on the nature of the **vessel** and its use, be restricted to less than the above specified limits. Such a restriction shall be recorded on the **vessel's Certificate**.

3.11 Vessels Operating in Categorised Waters and/or a Restricted Service – Alternative Safety Standards

3.11.1 Where the **owner/managing agent** of a **vessel** which operates in **categorised waters** and/or a restricted service (according to Section 3.10.3) considers that full application of the **Code** would be inappropriate because other safety provisions have been made, they may request **the Certifying Authority** to submit an application to the **Administration** to consider certification of the **vessel** in compliance with alternative safety standards.

3.12 Carriage of Additional Equipment

3.12.1 Equipment placed on board a UK **vessel** that was approved under the terms of the Marine Equipment Directive (MED) may remain on board for the duration of its operational life. Equipment replaced after 1st January 2023 must be replaced with UK approved marine equipment in accordance with **MSN** 1874, **as amended**.

3.12.2 Equipment on board which is additional to the minimum requirements of the **Code** and which is expected to be relied on in situations affecting safety or pollution

prevention must be in an operational condition[8]. If such equipment is inoperative, it shall either be repaired, removed, or if removal is not practicable, clearly marked as inoperative and secured.

3.13 Risk Assessment of Operations

3.13.1 A risk assessment appropriate to the intended operation shall be carried out by the **vessel owner/operator** to ensure that any circumstances, local conditions or equipment not covered by the provisions of the **Code** are adequately considered and that all known risks are mitigated. This shall be presented to the **Certifying Authority** as part of the examinations prior to issuing or renewing of the **Certificate**. See also Appendix 7.

3.13.2 A new risk assessment required by shall be conducted if a **vessel's** certificated **area category of operation** changes, the **vessel** is converted for a change in operational use or has an additional piece of equipment fitted. The risk assessment shall 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 circumstances.

3.13.3 A risk assessment of all persons on board shall be carried out by the **vessel owner/managing agent** considering the intended operation of the **vessel** and whether or not there may be persons on board which may be more susceptible to injury as a result of that intended operation.

3.14 Updating of the Code

3.14.1 A formal review of the **Code** will be conducted in line with statutory requirements. The **Code** requirements will be reviewed by an Industry Working Group, comprising representatives from the organisations listed in Section 1 and any other members as the **Administration** deems appropriate.

3.14.2 When new **standards** are developed and finalised by the British Standards Institution (BSI), European Committee for Standardization (CEN), International Maritime Organization (**IMO**), International Organization for Standardization (ISO) or any other international body, which impact upon the requirements of the **Code**, amendments of the **Code** may be considered immediately. In the interim period, draft **standards** may be applied where the **Administration** has accepted them as an equivalent standard.

3.14.3 The **2025 Regulations** provide for, from time to time, any document amending the **Code** which is considered relevant to be specified by the Secretary of State in a **Merchant Shipping Notice**.

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[8] Further guidance can be found in:
The Merchant Shipping (Marine Equipment) Regulations 2016; Part 2 – Regulation 5-(1);
IMO Resolution A.1155(32) PROCEDURES FOR PORT STATE CONTROL; Appendix 6, para 11 - Equipment in excess of convention or flag State requirements; and
The Code of Practice for the Safety of Small Fishing Vessels of less than 15m Length Overall.

3.15 Sports Diving, Sea Angling and other Water Based Recreational Activities

3.15.1 This **Code** sets out requirements to ensure the safety of a vessel and its occupants but does not specifically prescribe requirements relating to the sport or pleasure activities carried out on or undertaken from that **vessel**. Such activities, which may be subject to additional specific safety requirements, prescribed by the relevant water-based recreational organisation.

3.15.2 Where a water-based recreational organisation, approved by a **National Authority** recognised by one of the sports councils of England, Wales, Scotland or Northern Ireland, operates **vessels** within **area category of operation** 5 or 6, these **vessels** must comply with, and be certificated to the safety standards of that **National Authority**, provided that such have been **approved** by the **Administration**. The certificate must include text which confirms that the **Administration** recognises the validity of the relevant **National Authority** and limits the vessels to the specified area categories of operation. See also Section 27B Race Support Boats.

3.16 Official Log Book

3.16.1 All UK registered **vessels** of 25 GT and greater shall carry and complete an Official Log Book[9]. (See **MIN** 724).

[9] An official Log Book may be obtained free from charge from the **Administration.**

4 Certification and Examination

The purpose of this section is to set out the requirements for certification of a **vessel** and to provide details of the examination regime.

4.1 General

4.1.1. The **vessel owner/managing agent** shall:

.1 choose a **Certifying Authority**;

.2 complete a copy of the **SCV1** and return it to the **Certifying Authority**;

.3 arrange with the **Certifying Authority** for the **vessel** to be examined by an **authorised person**;

.4 obtain a **Certificate** for the **vessel** prior to it proceeding **to sea**; and

.5 carry on board, or where this is not practicable, retain ashore, the following certification documents which shall be made available for inspection upon request:

.1 the valid **Certificate**; and

.2 an up-to-date copy of the completed **SCV2**, signed by the **Certifying Authority**.

4.1.2 The **Certifying Authority**, on receipt of a completed **SCV1** in accordance with section 4.1.1.2, will inform the applicant of any prescribed fees in respect of the certification of the **vessel** and if it considers that it is appropriate to process the application:

.1 appoint an **authorised person** to examine the **vessel**;

.2 satisfy itself that the **vessel** has been designed and built to the appropriate standard as detailed in Section 5;

.3 accurately document the age, type and history of the **vessel**;

.4 satisfy itself that the **vessel** meets all the applicable requirements of the **Code**; and either

.5 retain a copy of the **SCV2** and issue the **vessel owner/managing agent** of a compliant **vessel** with the **SCV2** and **Certificate**; or

.6 may decline the application.

4.1.3 Where survey, examination of repairs, replacements or **modifications** are undertaken, the **authorised person** shall record this on both copies of the **SCV2**. This may be issued as an addendum to the **SCV2**.

4.1.4 The **Certifying Authority** shall consider the type, age and history of the **vessel** and any recent examination of the **vessel** by a **competent person** for which a report is available, and the length of any period for which the **vessel** has not had

valid certification when determining whether an examination equivalent to an **annual examination**, **renewal examination**, or **compliance examination** takes place.

4.2 Issue of a Certificate under the Code

4.2.1 The **Certifying Authority** may issue the **Certificate**[11] if the following information and requirements are met:

.1 the **Certifying Authority** has been provided with a copy of the signed **SCV2** as per 4.4.4 and confirmation has been received of satisfactory completion and testing of systems as deemed appropriate by the **Certifying Authority**;

.2 the **Certifying Authority** has been provided with a copy of either the approved Stability Information Booklet or the required stability information; and

.3 the **Certifying Authority** has received the required fee payments as appropriate.

4.2.2 A **Certificate** is valid for not more than five years from the date of examination of the **vessel** by the **authorised person**. The **Certificate** may be valid for a lesser period of time as determined by the **Certifying Authority**.

4.2.3 For a **vessel** built under full construction survey, the **Certificate** may be issued following the satisfactory completion of the final in-water **compliance examination**.

4.2.4 The **Certifying Authority** shall annually issue an identification disc. The disc acts as an indication to vessel users and inspectors that the named **vessel** has been examined and issued with a **Certificate** which is valid for the period of time stated on the disc. The disc shall be prominently displayed and visible from outside the **vessel**.

4.2.5 A **vessel** may only be in possession of one valid **Certificate** issued under this **Code** at any one time.

4.3 Examination Regime

4.3.1 A **vessel** will be assigned an examination grouping based on the following criteria:

Group	Criteria
1	Carries 15 or fewer persons and operates in **area category of operation** 2, 3, 4, 5, or 6
2	Carries 16 or more persons and/or operates in **area category of operation** 0 or 1

The **Certifying Authority** has discretion to re-assign a **vessel** if it believes that this is required by the **vessel's** operation, usage, history, or when the **vessel's** age becomes a contributing factor to the continued safety of the **vessel**.

4.3.2 Examination Regime for all Vessels

4.3.2.1 Where it is deemed necessary by the **Certifying Authority**, the **vessel** may require additional examinations out of the water at intervals of less than three years in accordance with an out of the water **intermediate examination**.

4.3.2.2 **Compliance examinations**, **renewal examinations** and **intermediate examinations** must be conducted by an **authorised person**.

4.3.2.3 **Annual examinations** of Group 1 vessels may be carried out by the **owner/managing agent**.

4.3.2.4 **Annual examinations** of Group 2 vessels may only be carried out by an **authorised person**.

4.3.2.5 Table 4.3.1 provides details of the minimum examination regime applicable to all **vessels**. For **vessels** satisfying more than one of the service types the more onerous examination regime will apply.

Table 4.3.1 – Examination Regime

Year	**Examination Type**	
	Group 1	**Group 2**
Start of Code Cycle	Compliance Examination (AP) (IW and OW)	
Year 1	Annual Examination (O/MA) (IW) Note 3	Annual Examination (AP) (IW) Note 3
Year 2	Annual Examination (O/MA) (IW) or Intermediate Examination (AP) (IW) Note 1	Annual Examination (AP) (IW) or Intermediate Examination (AP) (IW & OW) Note 1
Year 3	Intermediate Examination (AP) (IW) Note 1 or Annual Examination (O/MA)(IW) Note 2	Intermediate Examination (AP)(IW & OW) Note 1 or Annual Examination (AP) (IW) Note 2
Year 4	Annual Examination (O/MA) (IW) Note 3	Annual Examination (AP) (IW) Note 3
Year 5 (and start of next cycle)	Renewal Examination (AP) (IW and OW)	
Where:	AP – **Authorised Person** O/MA – **Owner/Managing Agent** IW – In water examination OW – Out of water examination	

Notes:

1 **Intermediate examination** required at Year 2 or 3 to ensure no more than 36 months between successive examinations by an AP.
2 Where an **intermediate examination** occurs in Year 2, the examination in Year 3 may be an **annual examination**.
3 **Annual examinations** may be conducted +/- 3 months of the anniversary date.

4.4 Compliance Examinations

4.4.1 A **compliance examination** of the **vessel** is conducted in two parts, in and out of the water, and shall be undertaken by an **authorised person** as directed by the **Certifying Authority**.

4.4.2 The arrangements, fittings and equipment provided on board the **vessel** and any equivalent provisions **approved** by the **Administration** shall be documented on the **SCV2**.

4.4.3 **Sailing vessels** shall additionally be examined as required by Section 26.

4.4.4 Upon satisfactory completion and documentation of the **compliance examination**, and the required declarations, a copy of the report form **SCV2**, signed by **the authorised person** and **vessel owner/managing agent**, shall be forwarded to the **Certifying Authority**.

4.5 Annual Examinations

4.5.1 Annual Examination by an Authorised Person

4.5.1.1 Where applicable (see Table 4.3.1 for vessel groups), the **vessel owner/managing agent** shall arrange for an **annual examination** of a **vessel** to be carried out by an **authorised person**, on behalf of the **Certifying Authority**, within 3 months either side of the anniversary date of the **compliance/renewal examination**, at intervals not exceeding 15 months.

4.5.1.2 The **authorised person** shall confirm that the arrangements, fittings and equipment provided on board are in a satisfactory condition and remain as documented in the **SCV2**, and that the **vessel**, including any buoyant collar where present, its machinery, fittings and equipment are in a sound and well-maintained condition and, where necessary, serviced at the required period.

4.5.1.3 Where the **authorised person** is satisfied that the arrangements, fittings and equipment provided on board are in a satisfactory condition and remain as documented by the **SCV2**, and that the **vessel**, its machinery, fittings and equipment are in a sound and well-maintained condition, a copy of the **SCV2**, signed by the **authorised person** and **vessel owner/managing agent**, shall be forwarded to the **Certifying Authority**.

4.5.2 Annual Examination by the Vessel Owner/Managing Agent

4.5.2.1 Where applicable (see Table 4.3.1 for vessel groups), the **vessel owner/managing agent** shall carry out an **annual examination** of a **vessel**, within 3 months either side of the anniversary date of the **compliance/renewal examination**, at intervals not exceeding 15 months.

4.5.2.2 The **vessel owner/managing agent** shall assess whether the arrangements, fittings and equipment provided on board are in a satisfactory condition and remain as documented in the **SCV2**, and that the **vessel**, including any buoyant collar where present, its machinery, fittings and equipment are in a sound and well-maintained condition, and where necessary serviced at the required period.

4.5.2.3 Where the examination reveals that the **vessel** and its equipment has not been maintained and serviced in accordance with Section 3.5, the **vessel owner/managing agent** shall not complete the **SCV2** and shall report these defects immediately to the **Certifying Authority** for action as necessary.

4.5.2.4 Where the **vessel owner/managing agent** is satisfied that the arrangements, fittings and equipment provided on board are in a satisfactory condition and remain as documented by the **SCV2**, and that the **vessel**, its machinery, fittings and equipment are in a sound and well-maintained condition, a copy of the **SCV2**, signed by the **vessel owner/managing agent**, shall be forwarded to the **Certifying Authority**.

4.6 Intermediate Examinations

4.6.1 The **vessel owner/managing agent** shall arrange for an **intermediate examination** to be carried out by an **authorised person** from the chosen **Certifying Authority** at least once during the life of the **Certificate**.

4.6.2 **Intermediate examinations** are required at intervals that ensure no more than 36 months between successive examinations by an **Authorised Person**. See Table 4.3.1.

4.6.3 An **intermediate examination** of a Group 1 **vessel** shall be conducted in the water. The **Certifying Authority** may also require the **vessel** be examined out of the water.

4.6.4 An **intermediate examination** of a Group 2 **vessel** shall be conducted in two parts: one part in the water and one part out of the water.

4.6.5 On satisfactory completion of the **intermediate examination**, a copy of the **SCV2**, signed by the **authorised person** and **vessel owner/managing agent**, must be forwarded to the **Certifying Authority**.

4.6.6 In-water Intermediate Examinations in Lieu of Out of Water Intermediate Examinations

4.6.6.1 In exceptional circumstances, where a **vessel** cannot be presented for the out of the water element of the **intermediate examination** by the due date, a divers/in-water examination may be accepted in lieu at the discretion of the **Certifying**

Authority.[13] For **vessels** with an **age date** of more than 15 years an in-water examination may be considered upon submission of a report from the **authorised person** which details the condition of the **vessel's** hull.

4.6.6.2 The in-water examination shall be carried out:

.1 under the authority of a certified diving company which holds a valid certificate issued by a Classification Society which is a United Kingdom **Recognised Organisation**. (See **MIN** 724);

.2 by certified diving operatives; and;

.3 when the **authorised person** overseeing and attending the survey has appropriate experience or specific training in conducting surveys to recognised Classification Society **standards** and scope.

4.6.6.3 The diving company shall present a written report of their findings to the **authorised person** during or on completion of the survey. On receiving the written report, the **authorised person** shall determine whether the hull, shell fittings and propulsion components have been maintained as required by the **Code** and are as documented on the **SCV2**.

4.6.6.4 Where the requirements of Section 4.6.6.2 cannot be met, the in-water examination may alternatively be completed via a Remotely Operated Vehicle (ROV) survey connected by a video link to the surface, provided the required scope of survey can be achieved and the **authorised person** overseeing and attending the survey has appropriate experience or specific training in conducting surveys to recognised Classification Society standards and scope.

4.6.6.5 Upon satisfactory completion of the in-water examination, the **Certifying Authority** shall confirm to the **vessel owner/managing agent** the latest date by which the **vessel** must be examined out of the water. (See **MIN** 724).

4.7 Renewal Examinations

4.7.1 The **vessel owner/managing agent** shall arrange for a **renewal examination** of the **vessel** to be carried out by an **authorised person** from the chosen **Certifying Authority** prior to the date of expiration of the existing **certificate**.

4.7.2 During the **renewal examination**, all **vessels** shall be examined out of the water and in the water; except where a **Certifying Authority** determines that a **vessel** can be safely, and fully, assessed through completion of either an out of the water or an in the water examination.

4.7.3 **Sailing vessels** shall additionally be examined as required by Section 26.

4.7.4 Upon satisfactory completion and verification that the arrangements, fittings and equipment documented in the **SCV2** remains in compliance with the **Code**, and that the **vessel** and its machinery are in a sound and well-maintained condition, a copy of the report form **SCV2**, signed by the **authorised person** and **vessel owner/managing agent**, shall be forwarded to the **Certifying Authority** who shall renew the **vessel's Certificate**.

4.7.5 If the **renewal examination** is completed more than three months prior to the date of expiration of the existing **Certificate**, the new **Certificate** shall be valid for a period not exceeding five years from the completion date of the **renewal examination**.

4.7.6 If the **renewal examination** is completed within the three months prior to the date of expiration of the existing **Certificate,** the new **Certificate** shall be valid for a period not exceeding five years from the date of expiration of the existing **Certificate**.

4.7.7 If the **renewal examination** is completed after the date of expiration of the existing **Certificate**, the new **Certificate** shall be valid for a period not exceeding five years from the date of expiration of the existing **Certificate**.

4.7.8 The **Certifying Authority** shall issue a new **SCV2** for the **vessel** following satisfactory completion of the **renewal examination**.

4.8 Emergency Examinations

4.8.1 Where an **owner** or **master** of a **vessel** becomes aware that the **vessel** has been involved in an incident described in Section 4.8.4 affecting the safety of the **vessel**, the **owner** or the **master** shall report the incident as soon as practicable to the **Certifying Authority**.

4.8.2 Where a report has been made under Section 4.8.1 a **Certifying Authority** shall:

.1 as soon as practicable, decide whether the **vessel** should be subjected to an **emergency examination**; and

.2 determine whether the **emergency examination** is conducted in water or out of water depending on the nature of the incident; then,

.3 communicate that decision to the **owner** and **master** of the **vessel**.

4.8.3 If the incident is not of a type included in Section 4.8.4, or which does not affect the safety of the **vessel**, the **vessel owner/managing agent** may report it to the **Certifying Authority** for advice on any remedial action that needs to be taken.

4.8.4 For the purposes of this Section an “incident” includes:

.1 any collision;

.2 any grounding except those that occur as part of the **vessel’s** intended operations, within the **vessel’s** design parameters, and which are unlikely to cause damage;

.3 any fire;

.4 any event or sequences of events other than those listed in 4.8.4.1 to 4.8.4.3 which has occurred directly in connection with the operation of the **vessel** that endangered, or if not corrected would endanger, the safety of the **vessel**, its occupants or any other person or the environment involving:

.1 the hull;

.2 the keel and keel attachments (including any internal structure e.g., where a GRP matrix and hull shell have been bonded together);

.3 the rudder;

.4 any other fitting that is below the waterline;

.5 the **propulsion system**, including the sails, rig and rigging of a **sailing vessel**;

.6 the steerage equipment;

.7 the machinery; or

.8 any **critical equipment**.

4.8.5 Where a **vessel owner** or **Master** fails to make a report of any incident detailed in Section 4.8.4 to the **Certifying Authority** at the first practicable opportunity as required by Section 4.8.1, the vessel's **Certificate** shall be considered invalid.

4.8.6 Submission of a report to the **Certifying Authority**, as required in Section 4.8.1, does not alleviate the responsibility of the **owner/managing agent** on the safe operation of the **vessel** and its seaworthiness.

4.8.7 For a **bare-boat charter** it is the responsibility of the **vessel owner/managing agent** to ensure that the charterer is made aware of their requirements to comply with the provisions of Section 4.8. A charterer is required to declare to the **vessel owner/managing agent** if an incident has occurred.

4.9 Additional Requirements for Inflatable Boats and Rigid Inflatable Boats

4.9.1 For **inflatable boats** and **rigid inflatable boats** the airtightness test set out in Section 4.9.2 shall be applied in addition to the examination regime detailed in Section 4.3:

.1 Annually by the **vessel owner/managing agent**; and

.2 At the **compliance examination** and **renewal examination**, by a **competent person** in accordance with the manufacturer's recommendations to the satisfaction of the **Certifying Authority**.

4.9.2 For the purposes of 4.9.1, an airtightness test means a test conducted as follows:

.1 inflate each **compartment** of the boat individually to 100% of the safe working pressure, or the pressure specified by the manufacturer for testing;

.2 check integrity of tubes and seams for each **compartment** with soapy water and, in the case of a **rigid inflatable boat**, the integrity of the joints between the tubes and the hull;

.3 check that after 30 minutes the pressure remains at the value required in 4.9.2.1;

.4 inflate all **compartments** to the safe working pressure, and record the ambient temperature. After 24 hours in this condition, pressures shall be rechecked and the ambient temperature retaken and then check that the pressure is not less than 100% of working pressure;

.5 a declaration shall be sent to the **Certifying Authority** on completion.

4.10 Deficiencies of Machinery or Safety Equipment

4.10.1 Where an **authorised person** determines that the condition of a **vessel**, its machinery or equipment does not meet the requirements of the **Code**, or is such that the **vessel** is not considered fit for service, they shall advise the **Certifying Authority** and inform the **vessel owner/managing agent** of the corrective action which is required.

4.10.2 If any corrective action deemed to be required is not undertaken within a specified period, the **Certifying Authority** shall suspend the validity of the **Certificate** for the **vessel**.

4.10.3 If the **Administration** has reasonable grounds to believe that a **vessel** issued with a **Certificate** by a **Certifying Authority** no longer fulfils the requirements of this **Code**, they may require the **Certifying Authority** that issued the **Certificate** to suspend or cancel the **Certificate**.

4.10.4 When satisfied that corrective action has been taken, the **Certifying Authority** shall restore the validity of the **Certificate**.

4.10.5 A **vessel's Certificate** is suspended if a required examination is not completed within the periods specified in the **Code**. The validity of the **Certificate** may be restored by carrying out the appropriate examination within one month of the required date which shall, as a minimum, consist of the requirements of the examination that was not carried out. Where an examination has been requested more than one month after the required period, the **Certifying Authority** shall determine whether either a **renewal examination** or **intermediate examination** is required.

4.10.6 When a **vessel** is sold, the **Certificate** is cancelled automatically and the selling **owner/managing agent** shall return the **Certificate** to the **Certifying Authority** for formal cancellation and records. A new **Certificate** may be issued to the new **owner/managing agent** on receipt by the **Certifying Authority** of the appropriate application form completed by the **new owner/managing agent**. The **Certifying Authority** shall determine whether either a **renewal examination** or **intermediate examination** is required to renew the **Certificate**.

4.10.7 The **Certifying Authority** may examine and the **Administration** may inspect a **Small Commercial Vessel** at any time.

4.11 Appeal Against the Findings of an Examination

4.11.1 Where a **vessel owner/managing agent** is dissatisfied with the findings of an examination and agreement cannot be reached with the **authorised person** who carried out the examination, the **owner/managing agent** may appeal to the **Certifying Authority** to review the findings.

4.11.2 At this review the **owner/managing agent** may call a representative or professional adviser to give opinions in support of the argument against the findings of the examination.

4.11.3 Should the above procedures fail to resolve the disagreement, the **vessel owner/managing agent** shall refer the disagreement to the **Administration**.

4.12 Interim Certificates

4.12.1 Upon satisfactory completion of the **compliance examination** an interim certificate may be issued by a **Certifying Authority** whilst the full **Certificate** is being prepared and may be valid for **up to** five months from the date of issue.

4.12.2 An interim certificate may be issued in respect of a **vessel** pending the approval of its stability information booklet, provided that:

.1 the **vessel** meets the **freeboard** and stability requirements for vessels not requiring a stability information booklet (see Section 12A); and

.2 the **vessel** does not undertake activities that would otherwise require a stability information booklet (see section 12.1.1.3).

4.12.3 An interim certificate may only be replaced by the full **Certificate**, subject to all outstanding exceptions from the **compliance examination** being completed to the satisfaction of the **Certifying Authority**.

4.12.4 No additional or subsequent interim certificates may be issued until after the next **renewal examination**.

4.13 Vessels Other Than UK[10] Vessels Operating in UK Waters

4.13.1 This **Code** applies to non-UK vessels operating from UK ports whilst in UK waters. Where **Certificates** are issued under this **Code** to such vessels, it shall be clearly stated on the **Certificate** that "this **Certificate** is applicable within UK territorial waters only".

4.14 Letters/Statements of Compliance for Non-UK Vessels

4.14.1 This **Code** does not apply to non-United Kingdom vessels while they are not operating from United Kingdom ports whilst in United Kingdom waters.

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[10] UK does not include the UK's Overseas Territories and Crown Dependencies which are Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Falkland Islands, Gibraltar, Guernsey, Isle of Man, Jersey, Montserrat, St. Helena and Turks and Caicos Islands.

4.14.2 If the **owner/managing agent** of such a **vessel** requires confirmation of compliance with the requirements of this **Code** they may be issued with a Letter/Statement of Compliance that clearly states that it is not a **Certificate** for the purposes of this **Code**, and that has no reference to authorisation by the **Administration**.

5. Construction and Structural Strength

The purpose of this section is to provide requirements for construction and structural strength of the hull to ensure sufficient strength to withstand all the loads that may be imposed on it during its life by operation at its service draught and maximum service speed, and by any sea or weather conditions likely to be encountered in the **vessel's** intended **area category of operation**.

5.1 General Requirements

5.1.1 The design and construction of the hull structure shall provide strength for the safe operation of the **vessel**, at its service draught and maximum service speed, to withstand the sea and weather conditions likely to be encountered in the intended **area category of operation**.

5.1.2 A vessel which operates in **area category of operation** 0, 1, or 2 shall be fitted with a **watertight weatherdeck** over the **length** of the **vessel**, satisfying the requirements of Section 4.3.1, and shall be of adequate structural strength to withstand the sea and weather conditions likely to be encountered in the intended **area category of operation**.

5.1.3 A **vessel** which operates in **area category of operation** 0, 1 or 2, shall have a permanent **accommodation space**.

5.1.4 A vessel which is not fitted with a **watertight weather deck** over the **length** of the **vessel** shall be restricted to **area category of operation** 3, 4, 5 or 6 and be provided with adequate reserves of buoyancy and stability for the vessel with its full complement of persons to survive the consequences of swamping.

5.1.5 A **vessel** which is not fitted with a **watertight weather deck** over the **length** of the **vessel** and which is not fitted with a **substantial enclosure** shall be further restricted to **area category of operation** 4 and 6 only, however compliance with the guidance in 5.7.2.6 and 5.7.3.4 may allow operation in **area category of operation** 3 or 5.

5.1.6 A **sailing vessel** which is not fitted with a **watertight weather deck** shall be limited to **area category of operation** 6.

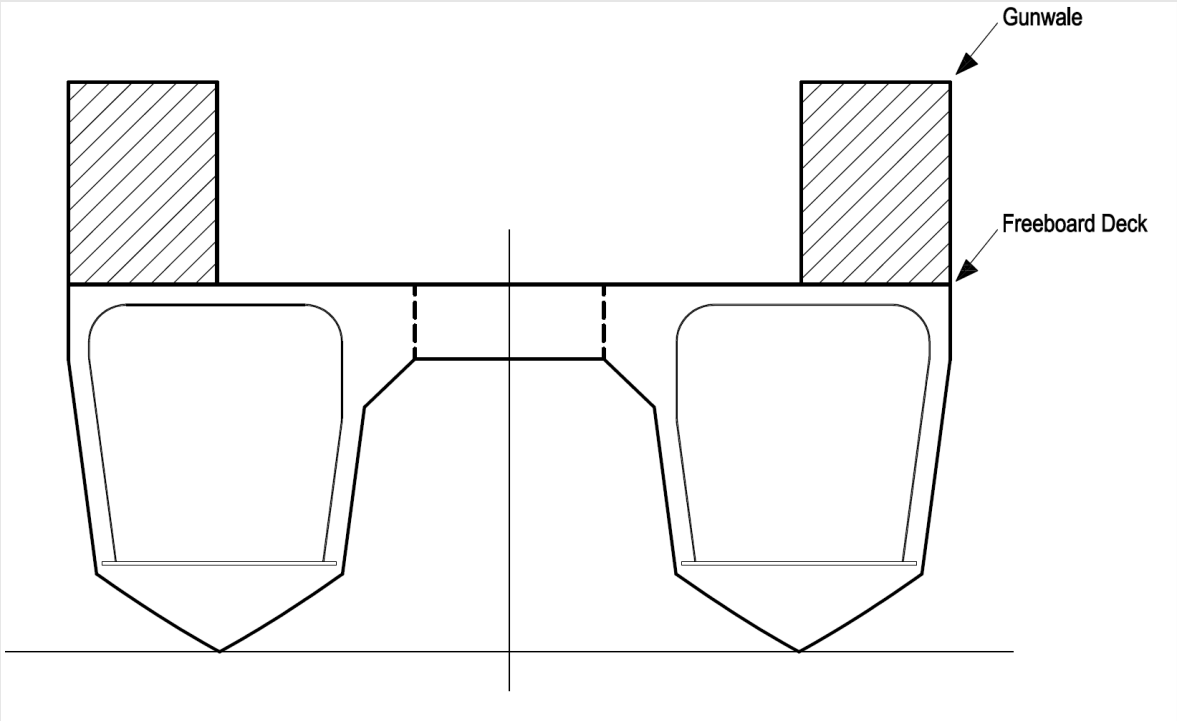
5.1.7 An **open boat** which is not a **sailing vessel** otherwise restricted by Section 5.1.6, shall be restricted to service in **area categories of operation** 4, 5 and 6.

5.1.8 All **vessels** which are fitted with a **watertight weather deck** over the **length** of the **vessel** but which don't meet the freeboard requirements of Section 13 shall possess a minimum of 10% reserve of buoyancy above the **weather deck** and sufficient stability for the **vessel** to survive the consequences of swamping when loaded with all the **vessel's** equipment, fuel, **activity related equipment** (e.g. diving equipment) and the number of persons for which it is to be certificated (see Section 12A.3).

5.1.9 **Existing vessels** that do not possess a minimum of 10% reserve buoyancy above the **weather deck** may be considered to have adequate reserves of buoyancy subject to the satisfaction of the **Certifying Authority**.

5.1.10 Figure 5.1.10 shows a suitable type of arrangement for the purposes of section 5.1.8. Shaded areas show buoyancy above the **watertight** deck, in this case at the **vessel** sides, but which may equally be fore and aft.

Figure 5.1.10



5.2 Structural Strength

Section 5.2 covers vessels which are not **boats with a buoyant collar**, **inflatable boats** or **rigid inflatable boats** – these vessel types are covered by Section 5.7.

5.2.1 The design of hull structure and construction should provide strength and service life for the safe operation of a **vessel**, at its service draught and maximum service speed, to withstand the sea and weather conditions likely to be encountered in the intended **area category of operation**.

5.3 Certificate of Construction

5.3.1 The hull of a **vessel** which has been surveyed and certificated by an **UK Load Line Assigning Authority**[11] shall be considered to be of acceptable structural strength, subject to the presentation of a valid certificate of construction to the **Certifying Authority**.

[11] UK Load Line Assigning Authorities, in addition to the MCA, are American Bureau of Shipping, Bureau Veritas, DNV GL, Lloyd's Register, Nippon Kaiji Kyokai and Registro Italiano Navale.

5.3.2 Where a certificate of construction has a wind or wave height restriction or limitation, then the **area category of operation** for the **vessel** shall be limited to those wave heights or wind restrictions as defined in Section 3.10.2.

5.3.3 A **vessel** which has not been built under the survey of an UK **Load Line Assigning Authority** will be considered to be of acceptable structural strength after a **compliance examination** by an **authorised person** and if it has a certificate of construction, or equivalent documentary evidence of construction issued:

.1 in accordance with the hull certification standards for **small vessels**, recognised by one of the UK **Load Line Assigning Authorities**; or

.2 in accordance with the hull certification standards for small craft as provided in **MIN** 724 and as verified by an Approved or Notified Body in compliance with RCR Module B (EU type-examination) together with either Modules C, D or F, Module G (conformity based on unit verification) or Module H (conformity based on full quality assurance). A Post Construction Assessment as defined in the RCR carried out by an Approved or Notified Body may also be accepted; or

.3 in accordance with the hull certification standards for small craft as provided in **MIN** 724 with verification of structural strength and build by a **Load Line Assigning Authority**, **Certifying Authority**, or an Approved or Notified Body.

A post construction assessment can be accepted subject to 5.3.3.2, supported by a structural survey;

or where:

.4 the individual **vessel** has a demonstrable record of at least five years' history of maintenance and safe operation in an area where the sea and weather conditions are no less severe than those likely to be encountered in the intended **area category of operation**; or

.5 the individual **vessel** has a **sister vessel** which is an **existing vessel** with an **age date** within 5 years of the **age date** of the individual **vessel** and has a valid **Certificate** for the intended **area category of operation**.

For acceptance under 5.3.3.3, the **vessel owner/operator** shall provide the **Load Line Assigning Authority, Certifying Authority** or an Approved or Notified Body with drawings, documents, proof of analysis to the hull certification standards for small craft as provided in **MIN** 724, the safety factors used, the maximum permissible combined stress and actual calculated stress. Responsibility for the accuracy of the evidence provided shall remain with the **vessel owner/operator**.

5.3.4 The verification of structural strength and build required by 5.3.3.3 and 5.3.5 shall include confirmation that the **vessel owner/operator** has provided the necessary structural analysis and drawings, and a **competent person** shall check that those plans and calculations are representative of the **vessel** and are reasonable. A structural survey and/or post construction assessment may also be carried out at

the discretion of the **Load Line Assigning Authority** or **Certifying Authority** to confirm this.

5.3.5 A **vessel** not built in accordance with either Section 5.3.1 or 5.3.3 may be considered to be of acceptable structural strength, provided that its full information (including calculations, drawings, details of materials and construction) is presented to, verified, and approved by the **Certifying Authority**.

5.3.6 A **vessel** shall be considered to be of acceptable structural strength if, at the date of entry into force of the **Code**, it has either:

.1 a valid Small Commercial Vessel Certificate issued under one of the Codes of Practice as per 1.8, appropriate to the **area category of operation** the **vessel** is to be issued a certificate for; or

.2 a valid Workboat Certificate appropriate to the **area category of operation** the **vessel** is to be issued a certificate for; or

.3 a valid Load Line Certificate or Load Line Exemption Certificate appropriate to the sea area and weather conditions likely to be encountered in the **area category of operation** the **vessel** is to be issued a certificate for.

5.4 Construction Materials

5.4.1 A vessel's hull and superstructure may be constructed of wood, **fibre reinforced plastic** (FRP), aluminium alloy, steel, HDPE or combinations of such materials.

5.4.2 **Vessels** with a **battery hybrid** or **battery electric propulsion system** shall not be constructed from HDPE.

Vessels constructed from HDPE with a **battery-electric** outboard motor which is a fully self-contained unit may be considered on a case-by-case basis, subject to the approval of the **Administration**.

5.4.3 Proposals to use any other material should be submitted to the **Certifying Authority** for approval. The **Administration** shall be notified with regards to the procedures that the **Certifying Authority** intends to adopt for the assessment of a material not listed in Section 5.4.1. Where a **Certifying Authority** considers it does not have the necessary expertise to assess vessels of the hull material being proposed, the **Administration** shall be consulted with regard to the procedures to be adopted.

5.5 Decks

5.5.1 Weather Deck

5.5.1.1 Where a **vessel** is fitted with a **watertight weather deck**, it shall extend from stem to stern over the **length** of the **vessel** and have positive **freeboard** throughout in any condition of loading of the **vessel**. (Minimum requirements for **freeboard** are given in Section 13.2).

5.5.1.2 A **weather deck** may be stepped, recessed or raised provided the stepped, recessed or raised portion is of **watertight** construction.

5.5.2 Recesses

5.5.2.1 A **recess** in a **motor vessel** with a **weather deck** complying with Section 5.5.1.1, shall be **watertight** to the interior of the **vessel** and shall have **efficient** means of drainage overboard when the **vessel** is heeled to an angle of 10 degrees (°). Such drainage is to have an effective area, excluding grills and baffles, of at least 20 square centimetres (cm^2) for each cubic metre of volume of the **recess**.

5.5.2.2 For **sailing vessels**, **recesses** in the **weather deck** shall be of **watertight** construction and have:

.1 a total volume (Vc) which does not exceed the value obtained from the following formula:

$$V1 + V2 + V \ldots + Vn \leq$$

$$x\ length\ of\ vessel\ x\ breadth\ of\ vessel\ x\ (F1 + F2 + F \ldots + Fn)n$$

Where:

V = volume of the **recess**

F = **freeboard** abreast the **recess**

n = number of **recesses** considered.

.2 means of drainage capable of **efficient** operation when the **vessel** is heeled to 30°. Such drainage to have an effective area, excluding grills and baffles, of:

.1 at least $10cm^2$ for a **vessel** operating in **area category of operation** 3, 4, 5 or 6; or

.2 at least $20cm^2$ for a vessel operating in **area category of operation** 0, 1 or 2; or

.3 at least $10cm^2$ for an **existing vessel** transitioning from the Yellow, Blue or Red Code, or **MGN** 280.

5.5.2.3 Alternative arrangements for the size and drainage of a **recess** may be accepted by the **Certifying Authority** provided it can be physically demonstrated that, with the **vessel** upright and at its deepest draught, the **recess** drains overboard from a swamped condition within 3 minutes; or the **cockpit** or **recess** should comply with ISO 11812 (Small Craft – Watertight and Quick Draining **Cockpits**) for the relevant **design category.** (See **MIN** 724).

5.5.2.4 If a **recess** in a **watertight weather deck** is provided with a locker which does not comply with an appropriate **standard** (see **MIN** 724), but which gives direct access to the interior of the hull, the vessel shall no longer be considered a **vessel** with a **watertight weather deck**. Any such locker shall be fitted with **weathertight**

cover(s) and in addition, the cover(s) to the locker should be permanently attached to the **vessel's** structure and fitted with efficient locking devices to secure the cover(s) in the closed position.

5.6 Watertight Bulkheads

5.6.1 The strength of a **watertight** bulkhead and the effectiveness of any alternative means shall be adequate for the intended purpose and shall be approved by the **Certifying Authority**.

5.6.2 Where pipes, cables, etc. penetrate **watertight** bulkheads, they shall be provided with valves and/or **watertight** glands, as appropriate.

5.6.3 Vessels Greater than 15m Fitted with Watertight Bulkheads

5.6.3.1 For **vessels** greater than 15 m waterline length and operating in **area category of operation** 0 or 1, a **watertight** collision bulkhead meeting the requirements of 5.6.1 and 5.6.2 shall be fitted. The collision bulkhead shall be positioned in accordance with the requirements of the **Recognised Organisation** or the equivalent standard as used for the design of the vessel's structure.

5.6.3.2 For **existing vessels** transitioning from **MGN** 280, the strength of a **watertight** bulkhead and the effectiveness of any alternative means shall be adequate for the intended purpose and shall be approved the **Certifying Authority.**

5.6.3.3 **Existing vessels** transitioning from **MGN** 280 which do not meet the requirements of 5.6.3.1 are not required to be fitted with **watertight** bulkhead(s), but where a **watertight** bulkhead is fitted it shall meet the requirements of 5.6.1, 5.6.2 and 5.6.4.1.

5.6.3.4 **Existing vessels** transitioning from the Blue Code or Yellow Code that are required to be fitted with **watertight** bulkheads under these Codes shall be considered to meet the requirements of 5.6.3.1 providing the **vessel** has not undergone significant structural alterations that would subsequently affect the **vessel's** compliance with the standard to which they were originally certified. In such cases, the **vessel** should be assessed against the requirements of Section 5.6 of this **Code**.

5.6.4 Vessels Fitted with Doors in Watertight Bulkheads

5.6.4.1 A door in a **watertight** bulkhead shall be fitted in such a way that the bulkhead, when the door is closed, retains its watertightness and strength. The door shall be kept closed at sea, unless opened for access only, at the discretion of the **Master**. A notice shall be fitted to both sides of the door "To be kept closed **at sea**, open for access only". Any **watertight** door shall be provided with a suitable safety provision to avoid injury to personnel by closure of the door.

5.7 Boats with a Buoyant Collar, Inflatable Boats and Rigid Inflatable Boats

5.7.1 General

5.7.1.1 The following requirements shall apply to a **boat with a buoyant collar**, an **inflatable boat** or **rigid inflatable boat**, other than a tender (dinghy) covered by Section 24.

5.7.1.2 For **boats with a buoyant collar** or **rigid inflatable boats** requiring a **substantial enclosure**, this shall either be a permanently secured solid structure, or one that can be removed in harbour, provided when in place it is through bolted to the deck and adequately constructed to meet the designed **vessel** limitations. Portable canopies that are secured by lines or by fabric hook and loop fastening are not acceptable.

5.7.2 Boats with a Buoyant Collar, Inflatable Boats and Rigid Inflatable Boats in Area Category of Operation 2 or 3

5.7.2.1 A **boat with a buoyant collar** or a **rigid inflatable boat** which is operated as an independent vessel in **area category of operation** 2 or 3 (and is not a tender operating from a vessel) shall be of a design and construction which would meet the requirements of Chapter III of the 1974 **SOLAS** Convention, **as amended**, and the parts of the Annex to **IMO** Resolution MSC.48(66) – "International Life-Saving Appliance Code", **as amended**, and MSC.81(70) – "Testing and Evaluation of Life-Saving Appliances", **as amended** – which are appropriate to the type of boat and subject to the variations which are given in the **Code**.

Alternatively, a **boat with a buoyant collar** or a **rigid inflatable boat** which is intended to operate as an independent vessel in **area category of operation** 2 or 3 (and is not a tender operating from a vessel) shall be of a design and construction which would meet the requirements of ISO 12215 and ISO 6185 and the certificate of construction requirements set out in Section 5.3.

5.7.2.2 **A boat with a buoyant collar** or a **rigid inflatable boat** which is operated as an independent vessel in **area category of operation** 3 may be accepted if built to RCR **Design Category** A or B.

5.7.2.3 **Inflatable boats** are not considered appropriate for operation as an independent vessel in **area category of operation** 2 and 3 and shall not be issued with a certificate for these areas.

5.7.2.4 A **boat with a buoyant collar** or a **rigid inflatable boat** may only be considered for operations in **area category of operation** 2, if it has a permanent **substantial enclosure** for all persons on board and the **vessel** has a steering position for the **vessel** within the enclosed space.

5.7.2.5 A **boat with a buoyant collar** or a **rigid inflatable boat** may only be considered suitable for night-time operations under **area category of operation** 3, if fitted with a **substantial enclosure** for the protection of persons on board, subject to approval by the **Certifying Authority**.

5.7.2.6 A **boat with a buoyant collar** or **rigid inflatable boat** which is not fitted with a **substantial enclosure**, may only be certified for **area category of operation** 3, where the **vessel** complies with the requirements set out in Appendix 1.

5.7.3 Boats with a Buoyant Collar, Inflatable Boats and Rigid Inflatable Boats in Area Category of Operation 4, 5 and 6.

5.7.3.1 A **boat with a buoyant collar**, an **inflatable boat** or **rigid inflatable boat** which is intended to operate as an independent vessel in **area category of operation** 4, 5 or 6 shall be designed and built to a **standard**, as detailed in **MIN** 724, **approved** by the **Administration** for their intended use.

Alternatively, the structure of the rigid hull of a **rigid inflatable boat** or a **boat with a buoyant collar** may meet the requirements of Section 5.3 Certificate of Construction.

5.7.3.2 **Inflatable boats** or **rigid inflatable boats** meeting the requirements of ISO 6185 Part 1 are not suitable for operation under the **Code**.

5.7.3.3 A **boat with a buoyant collar** or a **rigid inflatable boat** may only be considered for night-time operations under **area category of operation** 5, if fitted with a **substantial enclosure** for the protection of persons on board, or alternatively with the operational/seasonal limitations using the provisions of Appendix 1, but in either case, this shall be to the satisfaction of the **Certifying Authority**.

5.7.3.4 For **area category of operation** 5 only, alternative operating procedures for night-time operations without a **substantial enclosure** to that in 5.7.3.3 may be considered, with operational/seasonal limitations using the provisions of Appendix 1. Such cases should be subject to the satisfaction of the **Certifying Authority**.

5.7.3.5 An **inflatable boat** may only be considered appropriate for operation as an independent vessel in **area categories of operation** 4 and 6 and may be issued with a **certificate** limiting operation to these areas.

5.7.3.6 When the production of **vessels** is covered by an externally audited and approved quality system, and **vessels** are built in batches to a standard design, prototype tests on one **vessel** may be accepted for a vessel of the same design submitted for compliance with the **Code**.

5.7.3.7 A **vessel** which meets these requirements may be accepted if provided with adequate reserves of buoyancy and stability for the **vessel** to survive the consequences of swamping, when loaded with all the **vessel's** equipment, fuel, **activity related equipment** (e.g. diving equipment) and number of persons for which it is to be certificated (see Section 12 and Section 13 for applicable standard).

5.7.4 Construction and Materials

5.7.4.1 For **vessels** complying with Section 5.7.2.4, materials shall satisfy the requirements of Chapter III of the 1974 **SOLAS** Convention, **as amended**

(including ISO 15372:2000 Ships and marine technology. Inflatable rescue boats. Coated fabrics for inflatable chambers), except that fire–retarding characteristics are not required for the hull material. For **vessels** complying with Section 5.7.2.5, materials shall satisfy the requirements of ISO 6185 Part 2, or Part 3 or Part 4 as appropriate to the engine size and **length**.

5.7.4.2 For all **vessels**, materials shall satisfy the requirements of the **standards** recognised by the **Administration**, against which they have been assessed.

5.7.4.3 A **new vessel** of a type certified as a rescue boat under The Merchant Shipping (Marine Equipment) Regulations 1999 (SI 1999 No. 1957), **as amended**, or provided with a letter of compliance for use as a fast rescue boat for offshore stand-by vessels, or any equivalent certification or compliance, shall be accepted as complying with the construction requirements of the **Code**.

5.7.4.4 A new **boat with a buoyant collar**, an **inflatable boat** or **rigid inflatable boat** which is not built in accordance with either Section 5.7.2.4, 5.7.2.5, 5.7.2.6 or 5.7.3.4 may be specially considered, provided that full information (including calculations, drawings, details of materials and construction) is presented to and approved by the **Certifying Authority**.

6 Weathertight Integrity

The purpose of this section is to set requirements to ensure that any water from sea conditions likely to be encountered in the intended **area category of operation** will not penetrate into a **vessel**.

Sections 6.2 and 6.3 apply to accessways (doorways, hatchways and companion hatch openings) and windows (skylights, windows and portlights) which are collectively referred to in ISO 12216 as closing appliances.

Section 6.4 applies to valves, piping, ventilators, exhausts, sea inlets and discharges which are collectively referred to in ISO 12216 as external appliances.

6.1 General

6.1.1 A **vessel** shall be designed and constructed to be **weathertight** in a manner which will prevent the water ingress. For strength and watertightness of accessways and windows the requirements of ISO 12216 are considered acceptable. (See **MIN** 724).

6.2 Doorways, Hatchways and Companion Hatch Openings

For the purpose of this **Code**, doorways, hatchways and companion hatch openings are collectively referred to as accessways.

6.2.1 General Requirements

6.2.1.1 An accessway which gives access to any **compartment** shall be **weathertight** when closed.

6.2.1.2 An accessway which is used for escape purposes shall be capable of being opened, closed and where necessary, unlocked, from both sides. An accessway which is used for escape purposes shall not be locked when **at sea**.

6.2.2 Doorways Located Above the Weather Deck

6.2.2.1 A hinged doorway located in the side of the superstructure shall have the hinges on the forward edge to prevent ingress of sea water during normal operations and unfavourable sea conditions.

6.2.2.2 A doorway shall not open inwards and shall be sized such that the covering overlaps the doorway on all sides and has **efficient** means of opening and closure which can be operated from either side.

6.2.2.3 Sliding **weathertight** doors (including electric or mechanical doors), where fitted, shall be provided with suitable safety provision to avoid injury to personnel by closure of the door.

6.2.2.4 A doorway which is either forward or side facing shall be provided with a coaming, which can be permanently secured to the **vessel**'s superstructure, the top of which is at least 300mm above the **weather deck**. Doors shall be marked "not to be left open **at sea**".

6.2.2.5 A **weathertight** coaming may be portable, provided it can be permanently secured to the structure of the **vessel** and can be locked in position whilst **at sea**[12]. A door shall be marked "not to be opened **at sea**". A portable coaming shall be marked, "Not to be removed **at sea**".

6.2.2.6 An electrically powered door of any design that provides sole access or exit to an **accommodation space** shall be provided with means of manual operation or override in the event of power or mechanism failure of the door.

6.2.3 Doorways which are Located below the Weather Deck

6.2.3.1 A doorway fitted in a **watertight** bulkhead shall be of a **watertight** construction from both sides and be kept closed **at sea**. A notice shall be fitted to both sides of the door "To be kept closed **at sea**, open for access only".

6.2.3.2 Sliding **watertight** doors, where fitted, shall be provided with suitable safety provision to avoid injury to personnel by closure of the door.

6.2.4 Hatchways and Companion Hatch Openings

6.2.4.1 Where washboards are used to close a vertical opening they shall be arranged and fitted so that they will not become dislodged.

6.2.4.2 A covering to a hatchway shall be hinged, sliding, or permanently secured by other equivalent means to the structure of the **vessel** and be provided with locking devices to enable it to be positively secured from either side in the closed position.

6.2.4.3 A covering to a hatchway which is hinged and which is located in the forward half of the **vessel** shall have the hinges fitted to the forward side of the hatchway covering. Where this is not possible, alternative arrangements shall be presented to the **Certifying Authority** for their approval.

6.2.4.4 A hatchway in recessed or stepped decks of vessels as described in Section 5.5.1.2, that provide access to sea inlet valves, shall have access openings at least 300 mm above the minimum **freeboard** to deck (see Section 13.2), or the sea inlet valves fitted with remote closing devices.

6.2.4.5 A companion hatch opening from a **cockpit** or **recess**, regardless of orientation, which gives access to spaces below the **weather deck** shall be fitted with a coaming or washboard, the top of which is at least 300 mm above the sole of the **cockpit** or **recess**.

6.2.4.6 The maximum breadth of the opening of a companion hatch shall not exceed 1 metre.

6.2.4.7 A hatch with the hinges on the after side of the hatch may be accepted but shall be secured closed, locked **at sea**, marked "Not to be opened **at sea**" and be provided with a suitable **blank** to the satisfaction of the **Certifying Authority**, if the

[12] A trough or a recess which is 300 mm deep immediately adjacent to the accessway shall not be deemed to satisfy this requirement.

hatch provides access to a **compartment** below the **weather deck**. This does not apply to small technical spaces drained directly overboard, e.g. anchor lockers.

6.2.5 Hatchways which are Open at Sea

6.2.5.1 Hatchways, where practicable, shall be kept securely closed **at sea**. However, if a hatchway is required to be open **at sea** for lengthy periods, it shall be:

.1 kept as small as practicable, but never more than 1 square metre (m^2) in plane area at the top of the coaming;

.2 be aft facing and located on the centre line of the **vessel** or as close thereto as practicable; and

.3 shall comply with the coaming requirements of Section 6.2.4.5.

6.3 Skylights, Windows, Portlights and Side Skuttles

For the purpose of this **Code**, skylights, windows, portlights and side skuttles are collectively referred to as windows. Windows also include windows with multiple glazed elements and opening windows fitted within non-opening windowpanes.

6.3.1 All windows fitted above the **weather deck** shall be of **weathertight** construction.

6.3.2 All windows fitted below the **weather deck** shall be of **watertight** construction.

6.3.3 Where a window is an opening type it shall be provided with **efficient** means whereby it can be positively secured in the closed position.

6.3.4 A window which is provided as a means of escape shall be capable of being opened and closed from both sides.

6.3.5 Windows shall not be fitted in an **engine space** boundary, unless otherwise specifically permitted by this **Code**.

6.3.6 Windows and their frames shall meet the appropriate requirements defined in equivalent British, European, International Standards or Classification Society Rules. (See **MIN** 724).

6.3.7 For **vessels** operating in **area category of operation** 0 or 1, unless the glazing material for a window and its method of fixing in the frame is equivalent in strength to that required for the structure in which it is fitted, a portable **blank** shall be provided which can be secured in place in event of a breakage of the glazing.

6.3.8 Windows below the **weather deck** that do not meet the **standard** or that are not demonstrably equivalent in strength to that required for the structure in which it is fitted, a portable **blank** shall be provided which can be secured in place in event of a breakage of the glazing.

6.3.9 Windows below the **weather deck** shall be either non-opening or of a non-readily opening type. Where a window below the **weather deck** is capable of being opened, it shall be:

.1 fitted with a deadlight or provided with a portable **blank**; and

.2 marked “Not to be opened **at sea**”; and

.3 securely closed whilst the vessel is in navigation.

6.3.10 Where portable **blanks** are required, the number of **blanks** shall be sufficient for at least half of the number of such windows of each different size in the **vessel**. A **blank** shall be capable of being **efficiently** secured in position to prevent the ingress of water and shall be of a suitable material and equivalent in strength, with regard to design pressure, to that required for the structure to which it is attached, to the satisfaction of the **Certifying Authority**.

6.3.11 Where a window(s) used for navigational purposes is tinted or polarised, visibility shall not be impaired for colour, clarity, or otherwise when compared to non-tinted or non-polarised glass. Any tinting or polarisation should not inhibit visibility at night.

6.4 Valves, Pipes, Ventilators, Exhausts, Sea Inlets and Discharges

Section 6.4 applies to valves and associated piping, ventilators and exhausts, air pipes and sea inlets and discharges.

6.4.1 Valves and Associated Piping

6.4.1.1 A valve or other similar fitting, or a through hull fitting attached below the **vessel** waterline, within a **machinery space** or other high fire risk area, and essential system piping shall be constructed of steel, bronze, copper, or other non-brittle fire-resistant material meeting the **standards** set out in **MIN** 724.

6.4.1.2 Fittings used for fire mains, hydrants, or valves or cocks that form part of a fire-fighting system or device which incorporate components with a melting point below 1000°C may be accepted by the **Certifying Authority**, provided they have passed a fire test in accordance with ISO 10497.

6.4.1.3 **Plastic**/non-metallic piping, valves or other similar fittings shall only be used where the design and construction of the pipe, valve or fitting is appropriate to its usage (e.g. with respect to system type (open or closed loop), system pressure, system temperature, system pipe internal fluid, location etc.), using **standards**, class requirements and **IMO** A.753(18) **as amended** for guidance. When **plastic** piping or flexible[13] pipe is used it shall not contribute any additional risks or spread of fire, and be of a type suitable for the intended purpose.

6.4.1.4 **Plastic** pipes shall not be used in **machinery spaces** or pipes carrying flammable liquids unless where:

[13] Flexible pipes, hoses and hose assemblies – which are flexible hoses with end fittings attached – shall be in as short lengths as practicable, but shall not, in general, exceed 1.5 m in length, and only be used where necessary to accommodate relative movement between fixed piping and machinery parts. Where a flexible section of piping is provided, connections shall be of a screw type or equivalent approved type. Flexible pipes and end attachments shall be of approved fire-resisting materials.

.1 the **plastic** pipes meet the requirements of ISO 15540, or ISO 7840, or **IMO** A.753(18);

.2 insulated to prevent any additional risk of fire;

.3 the exhaust hosing meets the requirement of the **standards** specified in **MIN** 724;

.4 the **plastic** pipes are fitted within the **machinery space** of vessels certified to operate in **area category of operation** 0 or 1, the shut off valve shall be operable from outside of the **machinery space**; or

.5 the **plastic** pipes are fitted within the **machinery space** of vessels operating in **area category of operation** 2, 3, 4, 5 or 6, the shut off valve may be located on the pipe within the **machinery space**.

6.4.1.5 Where an **existing vessel** transitioning from Blue Code, Yellow Code, Red Code or **MGN** 280 is fitted with piping that does not meet the standards of 6.4.1.3 or 6.4.1.4, this piping and associated fittings shall be accepted until they reach end of life. Where piping is replaced, altered or modified from their original configurations, they shall comply with the standards of this **Code**.

6.4.2 Sea Inlets and Discharges

6.4.2.1 Any opening for inlets and discharges below the **weather deck** shall be provided with a **watertight** means of closure and if fitted below the waterline, the means of closure shall be either remotely operated or readily accessible in an emergency. Discharge lines shall also have an automatic non-return valve or fitted or be installed with other means to prevent backflooding (e.g gooseneck).

6.4.2.2 When an opening is for a log or other sensor, which is capable of being withdrawn, the opening shall be provided with a **watertight** means of closure when such a fitting is removed.

6.4.2.3 **Existing vessels** transitioning from Blue Code, Yellow Code, Red Code or **MGN** 280 with fittings that do not meet the requirements of 6.4.2.2, shall be accepted as meeting the requirements of this **Code** until these items reach end of life. Where these items need replacement, alteration, or modification from their original configuration, parts fitted shall meet the requirements of 6.4.2.2.

6.4.2.4 Inlet and discharge pipes from marine toilets shall be provided with a **watertight** means of closure as required by Section 6.4.2.1. When the rim of the marine toilet is less than 300 mm above the deepest waterline of the **vessel**, unless otherwise indicated by manufacturer's recommendations, anti-syphon measures shall be provided.

6.4.2.5 Observation glasses fitted in sea water systems below the deepest anticipated waterline, including any trim or heel, shall be so protected as to minimise the risk of mechanical damage, failure and consequential flooding.

6.4.2.6 For **sailing vessels**, overboard inlet and discharge pipes from marine toilets or holding tanks shall be looped up within the hull to the underside of the deck.

6.5 Ventilators and Exhausts

6.5.1 A ventilator situated on the **weather deck** shall be provided with a readily available means of **weathertight** closure, or be installed in a way that considers and mitigates against downflooding, e.g. through use of a gooseneck.

6.5.2 Ventilators, including those which must be kept open **at sea**, shall be located as far inboard as practicable and the height above the deck of the ventilator opening shall be sufficient to prevent inadvertent downflooding when the **vessel** is heeled (see Section 12).

6.5.3 **Vessels** which are fitted with ventilators for **machinery space(s)** in the hull side, which do not satisfy the requirements of Section 6.4.2.1 and 6.4.2.2, may be accepted subject to the satisfaction of the **Certifying Authority**. The following shall as a minimum be considered as a part of the approval process:

.1 the risk of fire in the **machinery space(s)**;

.2 the risk of downflooding in the **machinery space(s**); and

.3 potential restrictions to operation.

Such a ventilator shall be capable of being closed prior to activation of a fixed fire extinguishing system for the **machinery space(s)**.

6.5.4 An engine exhaust outlet which penetrates the hull below the **weather deck** shall be provided with means to prevent backflooding into the hull through the exhaust system. The means may be provided by system design or a built-in valve.

6.6 Air Pipes

6.6.1 Where located on the **weather deck**, an air pipe shall be kept as far inboard as possible and have a height above deck sufficient to prevent inadvertent downflooding when the vessel is heeled (see Section 12).

6.6.2 An air pipe, of greater than 10 mm inside diameter, serving a tank shall be provided with a permanently attached means of **weathertight** closure. Means of closure may be omitted if it can be demonstrated to the approval of the **Certifying Authority**, that the open end of the air pipe is afforded adequate protection by other means, which will prevent the ingress of water.

6.6.3 An air pipe serving a tank (also see Section 8.11) where provided with a closing appliance, shall be of a type which will prevent excessive pressure on the tank boundaries. Provision shall be made for relieving a vacuum when tanks are being drawn from or emptied.

7 Water Freeing Arrangements

The purpose of this section is to set requirements for water freeing arrangements which allow water trapped on deck to run freely overboard and ensure effective drainage of the deck.

7.1 General Requirements

7.1.1 Where a **vessel** is fitted with bulwarks such that shipped water may be trapped behind them, the bulwarks shall be provided with freeing ports that will ensure the deck can be effectively drained.

7.1.2 A **Certifying Authority** may approve smaller ports in a **vessel** having only small side deck areas in which water can be trapped, the reduced area being based on the volume of water which is likely to become so trapped. The following correction to the required freeing port area may be applied:

$$FP_{REQ} = FP_{MAX} \times (A_{ACT}/A_{MAX})$$

Where

FP_{REQ} = Freeing port area required

FP_{MAX} = Maximum freeing port area required

A_{ACT} = Actual area of deck fitted with enclosed bulwarks, excluding superstructure or **deckhouse** area

A_{MAX} = Area of maximum sized well (0.7L x B) where L and B are the dimensions of the vessel

7.1.3 Where a non-return shutter or flap is fitted to a freeing port it shall have sufficient clearance to prevent jamming and any hinges shall have pins or bearings of non-corrodible material.

7.1.4 Structures and spaces considered to be non-**weathertight** shall be provided with **efficient** drainage.

7.1.5 Where **activity related equipment** is to be stowed on deck, the stowage arrangement shall be such as to not impede the free flow of water from the deck.

7.1.6 Where the **owner/managing agent** of a **vessel** intends to operate in sea areas where ice accretion can occur, the water freeing arrangements shall minimise the risk of icing impeding the free flow of water from the deck.

7.1.7 Where a **deckhouse**(s) and/or **wheelhouses**, are situated on the **weather deck** and not connected to the internal shell of the **vessel**, provisions are to be made so that they can drain onto the **weather deck** in the event of flooding, to the satisfaction of the **Certifying Authority**.

7.1.8 In a **vessel** where freeing ports cannot be fitted, other **efficient** means of clearing trapped water from the vessel shall be provided to the satisfaction of the **Certifying Authority**.

7.2 Motor Vessels

7.2.1 The area of freeing ports shall be at least 4% of the bulwark area and be situated in the lower third of the bulwark height, as close to the deck as practicable.

7.2.2 A **vessel** of less than 12 metres in **length**, having a deck which is fitted with bulwarks all round and which is intended to operate in **area category of operation** 2, 3, 4, 5 or 6, shall:

.1 be provided with freeing ports as required by Section 7.2.1; or

.2 may be provided with a minimum of two ports fitted (one port and one starboard), which may be in the transom, each having a clear area of at least 225 cm^2 (0.0225 m^2).

Ports may only be fitted in the transom on **vessels** which, with the **vessel** trimmed as necessary to represent a normal operating condition and regardless of loading condition, will ensure the deck can be effectively drained.

7.3 Requirements for Rigid Inflatable Boats, Inflatable Boats or Boats with a Buoyant Collar

7.3.1 An adequate means of draining the vessel shall be demonstrated to the satisfaction of the **Certifying Authority**. This may include means of clearing water with the vessel moving ahead, and may, where deemed necessary by the **Certifying Authority** require an additional demonstration to that required by the swamp test of 12A.3.4.

7.4 Sailing Vessels

7.4.1 In a **sailing vessel** the freeing ports shall:

.1 have an area of at least 10% of that part of the bulwark area which extends for two-thirds of the **vessel's length** amidships;

.2 be located in the lower third of the bulwark height, as close to the deck as practicable; and

.3 be fitted with a grid which has a spacing of not more than 50 mm in any direction.

7.4.2 Where the average height of the bulwark over its **length** does not exceed 150 mm, freeing ports will not be required, however attention shall be paid to suitable drainage arrangements.

8 Machinery, Propulsion and Fuel Systems

The purpose of this section is to set out the requirements for **propulsion systems**, fuel supply and handling including stowage of spare petrol where appropriate.

8.1 General Requirements

8.1.1 A **motor vessel** shall be provided with a **propulsion system** suitable for marine use and with sufficient fuel capacity or charge for its intended **area category of operation**.

8.1.2 In **motor vessels**, the engine or electric motor type, systems and installations essential to the propulsion and the safety of the **vessel** shall be of a design, type, power and construction adequate to operate in accordance with the intended purpose of the **vessel**, its **area category of operation** and shall be designed to operate when the **vessel** is inclined **up to** 15 degrees of heel and 7.5 degrees of trim.

8.1.3 In **sailing vessels**, the engine or electric motor type, systems and installations essential to the propulsion and the safety of the **vessel** shall be of design, type, power and construction adequate to operate in accordance with the intended purpose of the **vessel**, its intended distance from a **safe haven** and shall be designed to operate when the **vessel** is inclined **up to** 15 degrees of heel either way under static conditions and 22.5 degrees either way under dynamic rolling conditions and simultaneously inclined 7.5 degrees of trim by bow or stern under dynamic pitching conditions.

8.1.4 A **vessel** shall not be fitted with a **propulsion system** fuelled or powered by fuels other than those provided for in Section 8 and Annex 1 of this **Code** unless permitted for use on a case-by-case basis, by the **Administration**. A risk assessment shall be provided by the **vessel owner/operator** and shall as a minimum consider the safe storage and use of fuel on board, fuel transportation, carriage, storage ashore, and refuelling operations.

8.2 Diesel Propulsion Systems

8.2.1 A **vessel** may be fitted with either an inboard or an outboard **diesel** engine.

8.2.2 All **vessels** fitted with marine **diesel** engines or **diesel battery-hybrid propulsion systems** shall comply with section 29.5 of the **Code**, as applicable.

8.3 Hybrid Propulsion Systems

8.3.1 Where a **vessel** is fitted with a **battery-hybrid propulsion system** it shall be designed to use one power source as primary power with the other source used as a secondary power source, boost or in an emergency. Requirements for electric **propulsion systems** are detailed in Annex 1.

8.3.2 A hybrid **propulsion system** shall be designed, where practicable, so it is not vulnerable to a single point of failure. The system shall be capable of providing power following failure of either the engine or electric motor.

8.3.3 **Batteries** used as a source of power for propulsion may share a boundary with fuel tank(s) or **accommodation spaces**, where the boundary is of **steel or other equivalent material**.

8.4 Electric Propulsion Systems

8.4.1 Requirements for pure electric **propulsion systems** (i.e. exclusively using **batteries** as a power source for propulsion) are detailed in Annex 1.

8.4.2 A **vessel** shall not be fitted with a pure electric **propulsion system** powered by battery types other than those covered in Annex 1, unless permitted on a case-by-case basis, by the **Administration**. The **vessel owner/operator** shall demonstrate that an appropriate level of safety is provided to the satisfaction of the **Administration**.

8.5 Hybrid or Electric Outboards

8.5.1 A **vessel** may be fitted with a **battery-hybrid** or pure-electric outboard. Requirements for electric **propulsion systems** are detailed in Annex 1.

8.5.2 The battery used as a source of power for propulsion for a hybrid or electric outboard shall be of a type suitable for marine use.

8.6 Petrol Propulsion Systems

8.6.1 Where a **vessel** is fitted with a petrol engine it shall be of an outboard type. Vessels fitted with inboard petrol engines may be considered on application to the **Administration**.

8.6.2 A **vessel** of any type may be fitted with a small engine (usually less than 4.5 kW) manufactured with an integral fuel tank, provided a safety warning sign is displayed with details of appropriate precautions to be taken when filling the fuel tank.

8.6.3 Fuel shall be supplied to an engine(s) from:

.1 a permanently installed fuel tank(s) which may be integral to the hull's structure; or

.2 where a **vessel** which is not an **inflatable boat** is of less than 8 m overall **length** or has a total power rating of less than 75 kW it may be supplied by not more than two non-permanently installed fuel tanks, each with a maximum capacity of 27 litres and which shall be fitted with a handle; or

.3 where an **inflatable boat** is less than 8 m in overall **length** and has a total power rating of less than 15 kW it may be supplied by a single, non-permanently installed fuel tank with a maximum capacity of 27 litres and which shall be fitted with a handle.

8.6.4 A non-permanently installed tank(s) must be fitted with the standard quick connection to the outboard engine without the risk of any spillage. (See **MIN** 724).

8.7 Alternative Propulsion Systems and Fuel Types

8.7.1 **Propulsion systems** and fuel types other than those listed in Section 8 and Annex 1 may be considered on a case-by-case basis by the **Administration.** (See **MIN** 724).

8.7.2 The **vessel owner/operator** shall demonstrate that an appropriate level of safety is provided to the satisfaction of the **Administration**.

8.8 Engine Starting and Stopping

8.8.1 A **vessel**'s engine shall be started either:

.1 by mechanical, air, hand or electric (with independent batteries) means; or

.2 by means other than that listed in 8.8.1.1 but which is equally effective and to the satisfaction of the **Certifying Authority**.

8.8.2 Where the sole means of starting an engine is by battery, a back-up battery and charging facility shall be available. Both batteries shall be connected to the starter motor via a "change-over switch". The batteries shall not discharge in parallel and shall be linked by an emergency link isolator or other means of cross-connecting to allow the starting of an engine with a flat battery.

8.8.3 Where the sole means of starting an engine is by air, a vessel shall be equipped with a means to recharge the air start system or have suitably charged back-up air receivers.

8.9 Shutting Down of Machinery

The following sections cover the means to manually and automatically shut down a **vessel's** machinery in the event of an emergency or to prevent injury in the event of a person(s) unintentionally entering the water whilst the propeller is running. Automatic shut-down systems are referred to as kill cords throughout this **Code**, but other technologies exist which achieve the same objective and shall be considered to have the same meaning.

8.9.1 Manual Shutting Down of Machinery

8.9.1.1 All **vessels** shall have reliable means to manually override and shut down propulsion machinery in the event of an emergency, risk to persons, or mechanical failure.

8.9.2 Automatic Shutting Down of Propulsion Systems (Kill Cords)

8.9.2.1 An **inflatable boat**, **rigid inflatable boat**, **boat with a buoyant collar**, **open boat** or any **vessel** where there is a risk of the helmsperson falling overboard shall be fitted with a kill cord which shall be securely attached to the helmsperson and used at all times whilst the engine or electric motor is running, in gear and the vessel is making way.

8.9.2.2 Any **inflatable boat**, **rigid inflatable boat**, **boat fitted with a buoyant collar**, **open boat**, or any **vessel** where there is a risk of the helmsperson falling overboard:

.1 shall have a spare kill cord on board; or

.2 shall have a kill system which is capable of override; or

.3 may have a sprung loaded throttle to return to idle in lieu of meeting the requirements of 8.9.2.1.

8.9.2.3 A **Certifying Authority** may accept alternative provisions that are at least as effective as those set out in 8.9.2.1 and 8.9.2.2 where the **owner/operator** of any **inflatable boat**, **rigid inflatable boat**, **boat fitted with a buoyant collar**, **open boat**, or other **vessel** where there is a risk of the helmsperson falling overboard from that vessel, demonstrates to the **Certifying Authority** the ability to automatically stop and manually restart the engines in the case of a helmsperson falling overboard.

8.9.2.4 An **inflatable boat**, **rigid inflatable boat**, **boat fitted with a buoyant collar**, **open boat** or any vessel where there is a risk of the helmsperson falling overboard which is not fitted with a kill cord shall demonstrate to approval of the **Certifying Authority** the ability to automatically stop and manually restart the engines in the case of the helmsperson falling overboard.

8.9.2.5 Where an **inflatable boat**, **rigid inflatable boat**, **boat fitted with a buoyant collar** or **open boat** is of a design where the **Certifying Authority** is satisfied there is no risk of the helmsperson falling overboard, the **vessel** does not need to comply with 8.9.2.1, 8.9.2.2, 8.9.2.3 or 8.9.2.4.

8.10 Installation

8.10.1 Machinery, **propulsion** and fuel **systems** shall be installed in such a way as to reduce the risk of injury to persons during normal movement about the **vessel**.

8.10.2 **Hazardous spaces**[14] shall be continuously ventilated. Means of ventilation shall be appropriate to the space ventilated.

8.10.3 Means shall be provided to isolate a source of fuel which may feed a fire in an outboard engine(s), and/or a fire in a **machinery space**. Such isolation points shall be clearly labelled. The means of closure shall be positioned away from any outboard engine(s), outside the **machinery space**, and shall be fitted as close to the fuel tank as possible. If the means of closure fitted is remotely operated, it shall have a manual override.

[14] The number and extent of Zone 0 and Zone 1 hazardous spaces on a vessel shall be kept to a minimum.

8.10.4 Where the engine(s) oil system is provided with water separator filter(s) of a type which has **plastic** or glass bowl(s), it shall be located so that it can be easily seen and protected against heat and accidental damage.

8.10.5 All **vessels**, including those with portable tanks, shall be fitted with means to drain any spillage occurring during fuel handling into a suitable receptacle.

8.11 Fuel Pipes

8.11.1 Fuel pipes shall be constructed of a fuel compatible, fire resistant, non-corrosive and a non-kinking material. (See **MIN** 724).

8.11.2 Fuel pipes shall be adequately supported along their length particularly at pipe connections. The method of supporting shall be appropriate for the material of the fuel pipe and its location in the fuel system.

8.11.3 Flexible fuel pipes may be permitted where necessary to allow for movements and vibration between fixed fuel pipes and fuel tanks for fuel consumers.

Flexible fuel pipes shall be:

.1 fire resistant, metal reinforced or protected from fire (see **MIN** 724);

.2 suitable for the carriage of the fuel;

.3 secured by either metal hose clamps or permanently attached end fittings such as swaged sleeve or sleeve and threaded insert (see **MIN** 724). Every pipe connection shall have a means of preventing slippage and shall not provide a path for fuel leakage; and

.4 renewed according to the manufacturer's instructions. Following an inspection or due to the condition of the flexible fuel pipe(s), the date of fitting and date of renewal shall be recorded on the **SCV2**. If the manufacturer's instructions are that the pipes installed do not need renewing, then it should be noted that no renewal date is required by the manufacturer.

8.11.4 High pressure fuel pipe(s) and associated fittings on a machinery system(s) shall be designed and installed to reduce the risk of oil mist fires[15].

8.11.5 A fuel filling or fuel ventilation pipe(s) shall be arranged to prevent over pressure of the fuel tank systems during filling.

8.11.6 A fuel ventilation pipe(s) from a fuel tank intended to be filled using on board transfer pumps or a pressurised system shall have a diameter of 1.25 times the diameter of the filling pipe.

8.11.7 A vent pipe(s) shall:

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[15] Examples of mitigations could include the use of double-skinned pipes, shielding, insulation of hot surfaces, proximity and protection of electrical apparatus, anti-vibration measures and fuel oil mist detection or a combination of these measures.

.1 lead to the open atmosphere;

.2 terminate in a position level with or higher than the fuel filling mouth;

.3 be protected against water ingress;

.4 be protected from flame ingress; and

.5 be protected against any other identified hazards.

8.11.8 Small tanks intended to be filled directly from a shore fuel line may have a vent pipe of minimum inside diameter of 11 mm if the filling pipe runs directly and near vertically to the top of the tank and has a minimum inside diameter of at least 32 mm (solid pipe) or 38 mm (hose).

8.11.9 Any fuel vent pipe opening shall terminate at least 400 mm from any opening into the interior of the **vessel.**

8.11.10 **Vessels** meeting an appropriate standards may also be accepted. (See **MIN** 724).

8.12 Fuel Tanks

8.12.1 All fuel tanks shall be constructed and installed to an appropriate **standard.** (See **MIN** 724).

8.12.2 All fuel tanks shall be constructed of a fuel and corrosion resistant material. (See **MIN** 724).

8.12.3 A fuel tank shall be protected against the effect of fire in the **machinery space**. Where a **machinery space** boundary is fitted, the fuel tank(s) shall be of the same fire-resistant standard as the **machinery space** boundary.[16]

8.12.4 A rigid aluminium fuel tank(s) which meets the requirements of 8.12.1 may be fitted within a **machinery space**(s) or form part of the **machinery space** boundary.

8.12.5 A rigid aluminium fuel tank(s) which does not comply with 8.12.1 is not permitted to be fitted within a **machinery space**(s) or form part of the **machinery space** boundary.

8.12.5 For an **existing vessel** transitioning from Blue Code, Yellow Code, Red Code, or **MGN** 280, where the fitting of a rigid aluminium fuel tank(s) within a **machinery space(s)** was unavoidable, the tank's installation and use shall, where practicable, mitigate against the potential of any additional fire risk.

8.12.6 A rigid **plastic** fuel tank shall not contribute to any additional fire risks, be fitted in the **machinery space** and shall not form part of a **machinery space** boundary.

8.12.7 For an **existing vessel** transitioning from Blue Code, Yellow Code, Red Code, or **MGN** 280, fitted with a rigid **plastic** fuel tank(s) within a **machinery space**(s), the

[16] Examples of mitigations include the use of double-skinned pipes, shielding, insultation of hot surfaces, proximity and protection of electrical apparatus, anti-vibration measures and fuel oil mist detection or a combination of these measures.

tank's installation and use shall, where practicable, mitigate against the potential of any additional fire risk.

8.12.8 A fuel tank(s) shall not be fitted in an area containing a **heating appliance(s)**. Where this is impracticable, the installation shall, where possible, mitigate against any additional fire risk and be approved to the satisfaction of the **Certifying Authority**.

8.12.9 Spaces containing a fuel tank shall be ventilated. Where a petrol tank(s) is fitted, it shall meet the ventilation requirements of ISO 11105. (See **MIN** 724).

8.12.10 A petrol tank(s) or a spare portable petrol container(s) (see Section 8.13) shall be protected from any damage, secured to the **weather deck** and capable of being quickly released.

8.12.11 When a petrol tank(s)is filled or decanted whilst the **vessel** is **at sea**, consideration shall be given to mitigate potential for and risk of fuel spillage, with an appropriate procedure in place to handle fuel spillage where this occurs.

8.13 Stowage of Spare Petrol

8.13.1 Spare petrol shall be:

.1 carried in a volume not exceeding 30 litres or in a maximum of six 5 litre containers;

.2 stowed securely on the **weather deck** where they can readily be jettisoned and where any spillage drains directly overboard; and

.3 in an approved and clearly marked container(s). If an individual container can hold more than 6 litres it shall also be ventilated.

8.13.2 Where it is impracticable to meet the petrol stowage requirements of Section 8.13.1.2 a **vessel** shall be permitted to carry a maximum of one 5 litre container of petrol stowed in a deck locker which meets the requirements of Section 15.4.2.

8.14 Pipes Carrying Flammable Liquids or Gases into or through Accommodation Spaces

8.14.1 Pipes carrying flammable liquids or gases into or through **accommodation spaces** may be permitted provided they comply with an appropriate **standard** as may be listed in **MIN** 724 or the following requirements are met to the satisfaction of the **Certifying Authority**:

.1 pipes shall be constructed of solid drawn copper alloy or seamless stainless steel, and shall be as short as possible; and

.2 pipes shall not have joints unless the following criteria is met:

.1 for pipes over 25 mm outside diameter (OD) joints shall have fully welded sleeves;

.2 for pipes under 25 mm OD joints shall be made of steel compression fittings approved for the intended service and the number of compression couplings shall be kept to a minimum;

.3 pipes which may be subject to a pressure head shall be provided with either a means of isolation from the tank(s) producing the pressure head or means of stopping supply pumps. The means of isolation or pump stops shall be easily accessible from locations both within and outside the **accommodation space**;

.4 pumps, piping and associated equipment located below a false floor or deck shall be separated from the **accommodation space** by a vapour-proof enclosure or cofferdam. The enclosure or cofferdam shall be suitably ventilated and drained with leakage indication, fitted to the drain, capable of providing an audible alarm. Where mechanical ventilation is used Ex-rated[17] fans shall be installed;

.5 Hydrocarbon (HC) gas/vapour detection shall be fitted within the vapour-proof enclosure or cofferdam;

.6 Pipes located behind linings may be permitted provided they are fitted within a vapour-proof enclosure;

.7 Pipe systems shall be tested at 1.5 times the working pressure or 3.5 bar whichever is the greater, subject to the satisfaction of the **Certifying Authority**; and

.8 Where pipes pass through bulkheads, decks or deckheads these penetrations shall be sealed with an approved bulkhead gland and shall be insulated in accordance with the required bulkhead division or class.

8.14.2 **Existing vessels** transitioning from the Yellow, Blue or Red Code, or **MGN** 280 are not required to comply with 8.14.1. Where piping is replaced, altered or modified from their original configurations, they shall comply with the standards of this **Code**.

8.15 Noise and Vibrations

8.15.1 A **vessel owner/operator** shall meet the requirements for the protection of all **crew** and **trainees** on board from the risks related to exposure to noise at work as detailed in the Merchant Shipping and Fishing Vessels (Control of Noise at Work) Regulations 2007. (See **MIN** 724).

[17] Ex is the mark for ATEX certified electrical equipment for explosive atmospheres. The ATEX directive consists of two EU directives describing what equipment and work environment is allowed in an environment with an explosive atmosphere. The ATEX 95 equipment directive 94/9/EC, Equipment and protective systems intended for use in potentially explosive atmospheres; 94/9/EC is replaced by ATEX directive 2014/34/EU from 20 April 2016.

8.15.2 A **vessel owner/operator** shall meet the requirements for the protection of all **crew** and **trainees** on board from the risks related to exposure to vibration at work as detailed in the Merchant Shipping and Fishing Vessel (Control of Vibration at Work) Regulations 2007. (See **MIN** 724).

9 Electrical Installations

The purpose of this section is to set out minimum requirements to satisfy appropriate national or international **standards** to ensure safety of marine electrical installations.

This section does not include requirements for **lithium-ion batteries** and **lead-acid batteries** used as a source of power for propulsion, these are detailed in Annex 1.

9.1 General

9.1.1 Electrical equipment and their installation shall be suitable for use in a marine environment and meet recognised **standard**(s) as listed in **MIN** 724.

9.1.2 The electrical equipment and installations shall be earthed and bonded or such that the **vessel** and any persons on board are protected against electrical hazards.

9.2 Lighting

9.2.1 An electric lighting system shall be installed which is capable of supplying an appropriate level of light to all enclosed **accommodation** and working **spaces**.

9.2.2 The design and placement of lighting shall preserve the night vision of Navigation Watchkeepers.

9.2.3 For **vessels** carrying out deck operations at night, an appropriate level of light shall be provided for those areas.

9.2.4 For **open boats**, **inflatable boats**, **rigid inflatable boats**, and **boats with a buoyant collar**, where sufficient electrical lighting is impracticable to install, electrical lighting may be battery powered with appropriate capacity to supply light as necessary for the duration of the voyage, battery replaceable with suitable replacements on board, or rechargeable with suitable charging facilities onboard.

9.3 Batteries

9.3.1 Battery System Requirements

9.3.1.1 Battery systems, including any back up battery system, shall be provided to satisfy the designed electrical requirements of the **vessel**.

9.3.1.2 The battery terminals shall be protected from contact with metallic objects.

9.3.1.3 All battery charging systems shall be fitted with circuitry to prevent overcharging and over-voltage, and shall have an indicator that shows the level of charge.

9.3.1.4 All back up batteries shall be fully charged prior to departure[18]

9.3.1.5 A battery disconnect switch shall be provided to simultaneously isolate all non-earthed poles.

[18] For specific requirements for back up batteries see Sections 8, 17, 19.

Single pole switches are permitted for use in the final sub-circuit for **existing vessels** transitioning from **MGN** 280 or the Yellow Code, Red Code or Blue Code. Single pole switches are only acceptable when used in the 'live' (+) conductor in a system with one pole earthed.

9.3.1.6 For a **sailing vessel**, batteries shall be of the sealed type to prevent loss of electrolyte in event of a knockdown or immersion.

9.3.2 Battery Stowage

9.3.2.1 Batteries shall be firmly secured to avoid movement and located in a position not likely to flood in normal operations or in the event of minor damage.

9.3.2.2 Ventilated batteries shall be installed with drip trays to adequately contain any electrolyte spillage.

9.3.2.3 Where there is a possibility of dangerous gases occurring within the battery stowage space, the space shall be ventilated. When ventilated, air shall be supplied at a level below the top of the batteries, and shall be exhausted from the highest point of the space directly to the open air. The system shall be designed in a way that dangerous gases may not re-enter the battery stowage space.

If mechanical means are employed to ventilate a battery **compartment** directly, then the components must not be a potential source of ignition. Reference should be made to the requirements of The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 (SI 2016 No. 1107), **as amended**.

9.3.2.4 Where a battery is contained within a **battery box** that is as effective as 9.3.2.2 in containing electrolyte spillage, a drip tray is not required to be installed.

9.3.2.5 Installation and ventilation arrangements shall follow national and/or recognised Classification Society **standards** appropriate for battery installations.

9.4 Electrical Cables

9.4.1 Electrical cables shall be located such that they:

.1 are protected from degradation;

.2 avoid contact with damaging surfaces;

.3 are protected from chafe where they pass through a part of the hull structure or storage space; and

.4 minimise electromagnetic interference (EMI).

9.5 Hazardous Spaces

9.5.1 Where electrical equipment is installed in a space where there is a risk of explosion, it must comply with a **standard** for prevention of ignition of a flammable atmosphere.

9.5.2 Lighting in **hazardous spaces** shall have two or more sub-circuits.

9.5.3 Where electric cables pass through bulkheads or decks separating **hazardous spaces** and non-**hazardous spaces** the integrity of the bulkhead or deck shall not be compromised.

9.5.4 Electric cables shall not, where practicable, pass through **hazardous spaces** except when:

.1 powering equipment installed within the space; or

.2 within gas tight metal pipework.

9.6 Lightning Protection

9.6.1 Where a **vessel** operates in areas or conditions where a considerable risk of lightning strike is identified, the **vessel** shall be fitted with suitable lightning strike protection. (See **MIN** 724).

9.7 Emergency Power Supplies

9.7.1 Emergency Lighting

9.7.1.1 Where a **vessel's** general lighting is provided by a centralised electrical system, an alternative source of lighting shall be provided by either an emergency power supply or an independent light source.

9.7.1.2 The alternative source of lighting required by section 9.7.1.1 shall be sufficient to facilitate continued safe operation of the **vessel** during emergency situations, to enable the safe mustering and evacuation of all persons on board and to enable the rescue of person(s) from the water.

9.7.2 Emergency Radio

9.7.2.1 Where an emergency power supply(s) to fixed radio equipment is installed, it shall be designed to supply power to the equipment for a minimum of 3 hours in the event of failure of the main electrical supply.

9.7.2.2 Where an emergency power supply(s) to fixed radio equipment is not installed, or does not meet the requirements of 9.7.2.1, it is recommended that **vessels** meet the requirements of 9.7.2.1 at first **renewal examination** or three years after date of entry into force of the **Code**, whichever is later.

9.7.3 Navigational Supplies

9.7.3.1 Where emergency power supply(s) to navigation lights and navigation equipment are installed, they shall be designed to supply power to the equipment for a minimum of 3 hours in the event of failure of the main electrical supply.

9.7.3.2 Where an emergency power supply(s) to navigational lights and navigation equipment does not meet the requirements of 9.7.3.1, it is recommended that **vessels** meet the requirements of 9.7.3.1 at the first **renewal examination** or three years after date of entry into force of the **Code**, whichever is the later.

10 Steering, Rudder and Propulsion Systems

The purpose of this section is to set out requirements for means of steering and manoeuvring.

10.1 General Requirements

10.1.1 A **vessel** shall be capable of manoeuvring from the **control position**(s) or **steering position**(s) by operation of:

.1 a steering system;

.2 a rudder system;

.3 a **propulsion system**; or

.4 any combination of these.

10.1.2 Sufficient horizontal and vertical arcs of visibility shall be provided from the main **control position** or **steering position** in all conditions of loading so as to avoid impeding the maintenance of a proper lookout as required by the **COLREGs**.

10.1.3 The field of vision from the main **control position** or **steering position** shall meet the **standard** set out in ISO 11591:2020/A1:2023 – 'Small Craft – Field of Vision from the Steering Position', or equivalent.

Existing vessels transitioning from Blue, Yellow or Red Code or **MGN** 280 are not required to comply with this provision.

10.1.4 **Control position(s)** or **steering position(s)** which do not meet 10.1.2 shall display the following warning label:

WARNING – Vision from this steering location is limited. Maintain a lookout as required.

10.1.5 A **vessel owner/operator** and all **crew** shall be aware of and respond appropriately to the dangers of interaction between vessels. (See **MIN** 724).

10.2 Steering System

10.2.1 The vessel shall be provided with an efficient steering system which shall comply with an appropriate **standard** for small craft steering systems. (See **MIN** 724).

Existing vessels installed with a steering system that predates the **standards** listed in **MIN** 724 do not need to comply with this requirement. However, if the steering system or individual components within the steering system are replaced, they should be replaced in line with appropriate **standard** for small craft steering systems unless the design of the steering system or **vessel** makes this totally impracticable.

10.2.2 The **vessel** shall have appropriate arrangements for emergency steering in the event of failure of the primary steering system:

.1 in the case of a **vessel** fitted with twin drives, though manipulation of power distribution between the drives

.2 in the case of a **vessel** fitted with outboard engine(s), a means to control the direction of thrust.

.3 in the case of a **vessel** fitted with a hydraulic steering system, there shall be means provided to lock the drives in the midship position, and a means of bypassing the hydraulic system to enable alternate means of controlling the direction of thrust.

The emergency steering shall be demonstrated in the form of an emergency drill to the approval of the **Certifying Authority**.

10.2.3 Where emergency steering is not provided, the **vessel** shall be restricted to **area category of operation** 4, 5 or 6, and have alternative safety measures and/or procedures to deal with any steering failure situation, demonstrated to the satisfaction of the **Certifying Authority**.

10.3 Rudder System

10.3.1 Where fitted, the design, construction and fittings of a rudder system shall be to an appropriate **standard** and to the satisfaction of the **Certifying Authority**.

10.3.2 The rudder system shall comprise of the rudder blade, the rudder stock and the methods of attachment to the hull or steering system.

10.4 Propulsion System

10.4.1 The design, construction and fittings of the **propulsion system** shall be to an appropriate **standard** and to the approval of the **Certifying Authority**.

11 Bilge Pumping

The purpose of this section is to set out requirements for **vessel** bilge pumping systems and associated piping for the **efficient** drainage of bilge water, and drainage of flooded spaces. It shall be noted that fitted bilge pump system is not to be relied upon to deal with a large ingress of water into a space or **compartment**, but rather to deal with leakages.

11.1 Bilge Pumping System Requirements

11.1.1 A bilge pump shall be permanently installed, self-priming and capable of being operated with all accessways closed.

11.1.2 A bilge suction line shall be fitted with an **efficient** strum box to protect from obstruction.

11.1.3 Permanently installed bilge pumps shall be fitted with a bilge suction valve of a non-return type.

11.1.4 Existing vessels transitioning from Blue, Yellow, or Red Code, or **MGN** 280 shall meet the requirements of 11.1.2 and 11.1.3 at the **vessel**'s next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later. Where this is not practicable, alternative arrangements may be accepted on a case-by-case basis subject to the satisfaction of the **Certifying Authority**.

11.1.5 Bilge pumps shall not be connected to **cockpit** drains and shall not discharge into a closed **cockpit**.

11.1.6 Where a **vessel** is fitted with auto-start bilge pumps in spaces that contain potential pollutant(s), the auto-start pump shall be:

.1 fitted with a filtration system, or

.2 periodically monitored.

11.1.7 All spaces where bilge water is likely to occur shall be able to be drained when the **vessel** is heeled to an angle of 10 degrees.

11.1.8 The **Certifying Authority** may permit an alternative means of providing **efficient** bilge pumping other than those described in this text, provided that full information on the bilge pumping system in place is submitted to and approved by the **Certifying Authority**.

11.2 Bilge Pumping Carriage Requirements

11.2.1 All Vessels

11.2.1.1 A **vessel** shall have at least one hand pump and one engine driven, electric motor, or independently powered pump, situated in each separate space or configured to provide pumping capability to each separate space where bilge water may occur. If two powered pumps are provided, the pumps shall be of sufficient capability to

ensure that all pumped spaces are capable of being drained after the failure of one pump.

11.2.1.2 Where a **vessel's** hull design contains spaces where accumulation of bilge water is impossible, there is no requirement for bilge pumping facility in that space.

11.2.2 Vessels in Area Categories of Operation 0 or 1

11.2.2.1 **Vessels** in **area category of operation** 0 or 1 shall have bilge pumps with a combined capacity of not less than 210 litres per minute. A powered pump shall have an individual capacity not less than 140 litres per minute.

11.2.2.2 **Existing vessels** transitioning from Blue Code, Yellow Code, Red Code or **MGN** 280 fitted with bilge pumps not meeting the capacity listed in 11.2.2.1 may continue with their existing bilge pumping arrangements until these items reach end of life. Where these items need replacement, alteration, or modification from their original configuration, pumps fitted shall meet the requirements of 11.2.2.1.

11.2.3 Vessels in Area Categories of Operation 2, 3, 4, 5 or 6

11.2.3.1 **Vessels** in **area category of operation** 2, 3, 4, 5 or 6 shall have bilge pumps that meet the following requirements:

.1 **Vessels** of 6 metres in **length** or less shall have a minimum individual bilge pump capacity of 10 litres per minute.

.2 **Vessels** of between 6 metres and 12 metres in **length** shall have a minimum individual bilge pump capacity of 15 litres per minute.

.3 **Vessels** of 12 metres in **length** or greater shall have a minimum individual bilge pump capacity of 30 litres per minute.

11.2.4 Requirements for Open Boats, Rigid Inflatable Boats, Inflatable Boats or Boats with a Buoyant Collar

11.2.4.1 **Open boats**, **rigid inflatable boats**, **inflatable boats** and **boats fitted with a buoyant collar** of less than 6 meters in **length** in **area category of operation** 6 are not required to comply with 11.2.1.1 and may instead carry a minimum of one hand powered bilge pump, one hand bailer or bucket of minimum capacity 10 litres.

11.2.4.2 **Open boats**, **rigid inflatable boats**, **inflatable boats** and **boats fitted with a buoyant collar** of 6 meters in **length** and over, shall carry a hand bailer or bucket of minimum capacity of 10 litres, in addition to the bilge pumping requirements in Section 11.2.1.1.

11.3 Bilge Alarms

11.3.1 A bilge alarm shall be fitted:

.1 in any **watertight compartment** containing propulsion machinery; and

.2 in any other **compartment** where there is a risk of accumulation of bilge water, or where the ingress of bilge water may not be readily seen.

11.3.2 Where a bilge alarm is fitted it shall be audible from the **control position(s)** or **steering position**(s) and be capable of being heard in all anticipated weather and operational conditions. For all manned **vessels** where more than one bilge alarm is fitted, a visual alarm indication shall also be visible at the **control position(s)** or **steering position**(s) .

12 Stability

The purpose of this section is to set out the stability requirements for all **vessels**.

Vessels not required to be issued with an approved Stability Information Booklet shall refer to 12.1 and 12A.

Vessels required to be issued with an approved Stability Information Booklet shall refer to 12.1 and 12B.

For the purpose of 12A vessel means a **vessel** which is not required to be issued with an approved Stability Information Booklet.

For the purpose of 12B vessel means a **vessel** which is required to be issued with an approved Stability Information Booklet.

12.1 All Vessels

12.1.1 General

12.1.1.1 For the purposes of the stability calculations in this **Code**:

.1 a person shall weigh a minimum of 82.5 kg;

.2 where a person weighs less than 82.5 kg, additional weight shall be carried so the total weight of person and weight is a minimum of 82.5 kg;

.3 where a weight is used in lieu of a person, this shall weigh a minimum of 82.5 kg.

12.1.1.2 **Existing vessels** transitioning from **MGN** 280 or the Yellow Code, Red Code or Blue Code, a person may be considered to weigh a minimum of 75 kg. Where a **vessel** has its stability re-assessed, such as following major **modifications**, the new stability assessment shall be conducted in line with the stability requirements of Section 12.1.1.1.

12.1.1.3 The following **vessels** are required to be provided with a Stability Information Booklet which is approved by the **Certifying Authority** (see section 12B):

.1 **vessels** operating in **area category of operation** 0 or 1;

.2 **vessels** carrying 16 or more persons;

.3 **vessels** carrying **activity related equipment** exceeding 1000 kg;

.4 **vessels** carrying **activity related equipment** where the **activity related equipment** element may create a free surface effect which may affect the stability of the **vessel**;

.5 **vessels** fitted with a **lifting device** (see 12B.4). For the purposes of 12.1.1.3 and 12.1.1.6, a **lifting device** does not include a person retrieval system, the vessel's own anchor handling equipment, or davits for **tenders**,

if the **Certifying Authority** is satisfied that the device does not have detrimental effect[19] on the stability of the **vessel**;

Motor vessels covered by 12.1.1.3.1 or 12.1.1.3.2 are not required to be provided with a Stability Information Booklet if the stability is assessed under Section 12A.2.6 using ISO 12217 Part 1 "Small craft – Stability and buoyancy assessment and categorisation – Non-sailing boats of hull **length** greater than or equal to 6 meters".

For guidance on the content and structure of a Stability Information Booklet and the stability assessment see Appendix 3.

12.1.1.4 A **vessel** not required to be provided with a Stability Information Booklet shall meet the requirements of Section 12A as appropriate or may alternatively comply with the requirements for **vessels** required to be issued with a Stability Information Booklet detailed in Section 12B.

12.1.1.5 A **vessel** operating in area(s) where there is a risk of icing shall either be provided with a Stability Information Booklet including conditions with icing allowances approved by the **Certifying Authority**, or avoid operating in this area(s) in winter (1 November to 30 April (inclusive) for northern areas, 15 April to 15 October (inclusive) for southern areas).

Areas where there is a risk of icing include, but are not limited to, the North Atlantic, the sea areas north of Europe, Asia, and the northern and north-eastern coasts of North America including the Bering Sea and Sea of Okhotsk (as far south as 45° North), and the Southern Ocean south of 60° South.

A **new vessel**, or an **existing vessel** which has its stability reassessed, which is not approved to operate in these area(s) where there is a risk of icing shall have this noted in its approved Stability Information Booklet and **Certificate**.

12.1.1.6 Where a **vessel** has been modified from the condition under which its stability was previously assessed, the **vessel owner/operator** shall inform the **Certifying Authority** who shall undertake a lightship or **freeboard** check by practical test or calculation, and if the lightship or **freeboard** has changed more than 5% from that originally recorded, then:

.1 shall conduct a full stability analysis appropriate to the certificated **area category of operation**; or

.2 may require a **vessel** whose stability has been assessed using ISO 12217 to be reassessed under a Post Construction Assessment as defined in the RCR carried out by an Approved or Notified Body; and

.3 give consideration to re-examining the Stability Information Booklet (if applicable) if **modifications** are made to the **lifting device**.

[19] Consideration shall be given to re-examining the Stability Information Booklet if **modifications** are made to the **lifting device**.

12.1.1.7 When the stability information for a **vessel** has not been renewed or reassessed within a period of 20 years of the initial stability assessment, the **Certifying Authority** shall undertake a lightship or **freeboard** check, by practical test or calculation, at the **vessel's** next **renewal examination** to confirm the validity of the initial stability assessment. If the lightship or **freeboard** data has changed more than 5% from that initially recorded, then the **Certifying Authority** shall conduct a full stability analysis appropriate to the intended **area category of operation**.

12.1.1.8 If a **vessel** cannot meet the stability criteria given within Section 12, it may be specially considered by the **Administration**.

12.2 Sailing Vessels

12.2.1 The stability of **sailing vessels** fitted with non-fore and aft rigs, or with moveable/variable ballast shall be specially considered by the **Certifying Authority**, and such cases shall be reported to the **Administration**.

12.3 Stability of Vessels Engaged in Towing Operations

12.3.1 **Vessels** engaged in **towing** operations in accordance with Section 25.5 shall comply with the requirements of Section 12 which are applicable to the **vessel**.

12.3.2 **Vessels** with a Stability Information Booklet may tow one or more vessels or floating objects using any of the **towing** methods outlined in 25.5.1.1.

12.3.3 **Vessels** without a Stability Information Booklet may tow one or more vessels or floating objects which is/are:

.1 cumulatively up to and including twice the displacement of the **towing vessel,** using any of the **towing** methods set out in 25.5.1.1.

.2 cumulatively more than twice the displacement of the **towing vessel**, using only the **towing** methods set out in 25.5.1.1.2 and 25.5.1.1.3.

12.3.4 An **open boat, rigid inflatable boat** or **boat with a buoyant collar** engaged in **towing** using the towline method set out in 25.5.1.1.1 shall be limited to operations in **area category of operation** 6 only.

12.3.5 An **inflatable boat** is not considered appropriate for towing operations.

12A Vessels not Required to be Issued with an Approved Stability Information Booklet

12A.1 General

For the purposes of section 12A, vessel means a **vessel** that is not required to be issued with an approved stability information booklet.

12A.1.1 Tests and calculations of **vessel** stability shall be conducted by a **competent person(s)** and the results approved by the **Certifying Authority**.

12A.1.2 A detailed record of test and calculation procedure(s) and the approved results shall be kept by the **Certifying Authority** and the maximum weight capable of being carried shall be entered on the **Certificate**.

12A.2 Intact Stability: Vessels Complying with Simplified Stability Assessment

12A.2.1 A **vessel** shall be tested in the **fully loaded condition(s)** which shall correspond to the assigned **freeboard**. Testing shall ascertain the resulting angle of heel and position of the waterline when the **maximum number of persons** the **vessel** is certificated to carry are assembled along one side of the **vessel** (the helmsman may be assumed to be at the helm).

12A.2.2 A **vessel** shall be considered to have an acceptable standard of stability if:

.1 the angle of heel does not exceed 7°; or

.2 the angle of heel shall not exceed 10° where it is not possible to comply with 12A.2.2.1, provided the **freeboard** in the heeled condition is in accordance with the requirements of Table 13.2.1.1.

12A.2.3 For **decked vessels** the **freeboard** to deck shall not be less than 75 mm at any point.

12A.2.4 For **vessels** over 15 meters in **length** the heeling moment applied during the test required in 12A.2.1 shall be calculated using the following formula:

$$GM = \frac{57.3\ x\ HM}{\theta\ x\ \Delta}$$

where:

HM = number of persons x weight per person (kg) x distance from CL (m)

θ = heel angle (degrees) obtained from the test defined in 12A.2.1 and 12A.2.2

Δ = full displacement including the **maximum number of persons** the **vessel** is certificated to carry, and **activity related equipment**

Note: Weight of persons shall be take in accordance with 12.1.1.1, and **activity related equipment** weight must not exceed 1,000 kg.

A **vessel** shall attain a value of initial GM not less than 0.5 m where displacement of the **vessel** is estimated, or 0.35 m where the displacement of the **vessel** is known and verified by the **Certifying Authority**.

12A.2.5 For **vessels** carrying a combination of **passengers** and **activity related equipment**, for which the **activity related equipment** element does not exceed 1000 kg the test defined in 12A.2.4 shall be carried out with the full complement of **passengers** and **activity related equipment**, and with **passengers** only. For the purpose of these tests the **activity related equipment** shall be assumed to be retained at its normal stowage position.

12A.2.6 **Vessels** complying with any option of section 5.3 of ISO 12217 Parts 1 or 3, which sets out the tests to be applied (see **MIN** 724), may as an alternative, be assigned an **area category of operation** in accordance with the following Table 12A.2.6 after review of the Declaration of Conformity and Type Certificate for verification of the stability assessment:

.1 by an Approved or Notified Body in accordance with RCR Modules A1, B (EU type-examination) together with either Modules C, D or F, Module G (conformity based on unit verification) or Module H (conformity based on full quality assurance). A Post Construction Assessment as defined in the RCR carried out by an Approved or Notified Body may also be accepted; or

.2 by a **Load Line Assigning Authority** or **Certifying Authority**.

Table 12A.2.6 – Permitted Areas of Operation and ISO 12217 Design Categories

Permitted Area of Operation	MCA Area Category of Operation	ISO 12217 Design Category
Up to 60 **miles** from a **safe haven**	2	B
Up to 20 **miles** from a **safe haven**	3	B
Up to 20 **miles** from a **safe haven** in **favourable weather** and **daylight**	4	C
Up to 3 **miles** from a point of departure in **favourable weather**	5	C
Up to 3 **miles** from a point of departure in **favourable weather** and **daylight**	6	C

12A.2.7 The **maximum permissible weight** derived from the test(s) conducted shall be recorded on the **certificate**.

12A.3 Stability and Survivability of Open Boats, Inflatable Boats, Rigid Inflatable Boats or Boats with a Buoyant Collar

Section 12A.3 applies to **open boats**, **inflatable boats**, **rigid inflatable boats** and **boats with a buoyant collar** which are not completely in accordance with a standard production type[20].

12A.3.1 General

12A.3.1.1 The tests detailed in 12A.3 shall be carried out on a **vessel** floating in still sea water.

12A.3.1.2 The **maximum permissible weight** derived from the test(s) conducted shall be recorded on the **Certificate**.

12A.3.1.3 **Vessel** loading shall be restricted by the **maximum permissible weight**. For the purpose of these tests attention shall be paid to any **activity related equipment** where additional weight may be significant.

12A.3.1.4 **Vessels** complying with the requirements of ISO 12217 are not required to duplicate the tests set out in 12A3.3 – 12A3.4 provided compliance with the tests under ISO are confirmed by the **Certifying Authority**.

12A.3.2 Stability Test Criteria

12A.3.2.1 The stability tests detailed in 12A.3.3 – 12A.3.5 shall be carried out with the **vessel** in its **fully loaded condition**. The engine, electric motor, equipment and **activity related equipment** may be replaced by an equivalent mass.

12A.3.2.2 Testing shall be carried out with a **maximum number of persons** the **vessel** is certificated to carry assembled on one side of the **vessel** with half this number seated on the buoyancy tube or gunwale.

This test shall be repeated with the persons seated on the other side and at each end of the **vessel**.

The **activity related equipment** or equivalent alternative mass shall be retained at its normal stowage position.

12A.3.2.3 The **freeboard** to the top of the buoyancy tube or gunwale shall be recorded and shall be positive around the entire periphery of the **vessel**.

12A.3.3 Damage Tests

12A.3.3.1 The damage test(s) shall be carried out with all the **vessel** in its **fully loaded condition**. The engine, electric motor, equipment and **activity related equipment** may be replaced by an equivalent mass.

12A.3.3.2 The damage test(s) shall be carried out:

.1 with forward buoyancy **compartment** deflated (both sides where appropriate); and

[20] Completely in accordance with a standard production means where the Certifying Authority is provided with a certificate of approval for the tests detailed in 12A.3.

.2 with the entire buoyancy **compartment** from the centre line at the stem to the transom on one side deflated.

Where a buoyancy **compartment** never enters the water while the **vessel** is at rest in its **fully loaded condition**, it is not required to be deflated for the purposes of this test.

12A.3.3.3 The tests will be successful if, for each of the conditions of simulated damage above, the **maximum number of persons** the **vessel** is certificated to carry are supported within **vessel**, and the requirements of 12A.3.2.3 are met.

12A.3.3.4 An **open boat** or a **boat fitted with a buoyant collar** is not required to undertake the test in 12A.3.3.2.

12A.3.4 Swamp Test

12A.3.4.1 The swamp test shall be carried out by fully swamping the **vessel** and meeting the following carriage requirements:

.1 all the **vessel's** equipment;

.2 a full fuel tank;

.3 a mass equivalent to its engine or electric motor;

.4 **activity related equipment**; and

.5 the **maximum number of persons** the **vessel** is certificated to carry.

During the swamp test the **vessel** shall have a reserve buoyancy of 10%.

12A.3.4.2 During the swamp test the **vessel** shall not be seriously deformed subject to the satisfaction of the **authorised person**.

12A.3.4.3 An adequate means of draining the **vessel** shall be demonstrated at the conclusion of this test to the satisfaction of the **authorised person**.

12A.3.4.4 As an alternative to the test in 12A.3.4.1 it may be demonstrated by calculations to the satisfaction of the **Certifying Authority** that the **vessel** meets the requirements of 12A.3.4.1 to 12A.3.4.3.

12A.3.5 Person Recovery Stability Test

12A.3.5.1 The person recovery stability test is designed to test the stability of the **vessel** and is not a test of the person overboard recovery systems and procedures for which there are more appropriate tests (see Section 14.7). During the person recovery stability test two persons shall recover a third person or a mannequin of equivalent weight from the water into the **vessel** under the following conditions:

.1 the third person shall feign to be unconscious and have their back towards the **vessel** or, the mannequin shall be positioned such that the back is towards the **vessel**;

.2 each person involved shall wear an appropriate lifejacket;

.3 where the water temperature requires, the third person shall wear suitable anti-exposure clothing (see Section 14.5); and

.4 the **vessel** shall remain stable and not capsize.

12A.4 Sailing Monohull Vessels

12A.4.1 Vessels without External Ballast Keels

12A.4.1.1 Method 1:

.1 The centre of gravity (VCG) of a **vessel** shall be established by an inclining experiment of static stability (GZ curve) for the loaded departure with 100% consumables and loaded arrival 10% consumables.

These conditions may include a margin for growth of **up to** 5% of the lightweight, at the discretion of the **Certifying Authority**, with the VCG positioned at the upper deck amidships.

Buoyant structures intended to increase the range of positive stability shall not be provided by fixtures to either a mast, rigging or superstructure.

For standard production-series built vessels, the GZ may be derived from an inclining experiment conducted on a **sister vessel**, subject to corrections for differences in outfit, to the satisfaction of the **Certifying Authority**.

.2 The permitted area of operation is dependent on a **vessel's** range of stability (see Table 12A.4.3).

.3 For vessels operating in **Area Category of Operation** 6, it may be demonstrated by test or calculation that an open sailing boat when fully swamped is capable of supporting its full outfit of equipment and the total number of persons for which it is certificated. Sailing dinghies and small un-ballasted sailing dayboats are to be capable of being righted by their **crew** after inversion.

12A.4.1.2 Method 2:

.1 Full application of ISO 12217 Part 2 for vessels greater than 6 metres in **length** either performed or verified in accordance with Table 12A.4.3 by:

.1 an Approved or Notified Body in accordance with RCR Modules A1, B (EU type-examination) together with either Modules C, D or F, Module G (conformity based on unit verification) or Module H (conformity based on full quality assurance). A Post Construction Assessment as defined in the RCR carried out by an Approved or Notified Body may also be accepted; or

.2 a **Load Line Assigning Authority** or **Certifying Authority**.

.2 Full application of ISO 12217 Part 3 for vessels under 6 meters in **length,** either performed or verified in accordance with Table 12A.4.3 by:

.1 an Approved or Notified Body in accordance with RCR Modules A1, B (EU type-examination) together with either Modules C, D or F, Module G (conformity based on unit verification) or Module H (conformity based on full quality assurance). A Post Construction Assessment as defined in the RCR carried out by an Approved or Notified Body may also be accepted; or

.2 a **Load Line Assigning Authority** or **Certifying Authority**.

.3 The permitted area of operation is dependent upon a **vessel's** assigned STIX Value and/or **Design Category** (in accordance with Table 12A.4.3).

12A.4.2 Vessels Fitted with External Ballast Keels

12A.4.2.1 **Vessels** fitted with external ballast keels shall follow one of the following methods:

.1 as for **vessels** without external ballast keels. See Section 12A.4.1.1;

.2 as for **vessels** without external ballast keels. See Section 12A.4.1.2;

.3 by the "STOPS" Numeral developed by the Royal Yachting Association (RYA). See Section 12A.4.3; or

.4 by the SSS Numeral calculated by the Royal Ocean Racing Club (RORC). See Section 12A.4.4.

Notes: For **vessels** fitted with one or more top-weight items, which include but are not limited to:

.1 roller furling headsail;

.2 in-mast or behind-mast roller furling mainsail;

.3 a radar antenna or radar reflector mounted higher than 30% of the **length** of the **vessel** above the waterline.

Ballast weight reductions shall be calculated as follows:

Moments are to be taken around the VCG of the **vessel**, which is assumed to be at the waterline. The heeling moments attributed to the top-weight items are resolved, and the ballast weight is reduced using the following formula:

$$CBW = \frac{TW\ x\ H}{DCB + \frac{DK}{2}}$$

where:

CBW = correction to the ballast weight

TW = weight of the top-weight items

H = height of the vertical centre of gravity above the waterline

DCB = draught of the canoe body, taken by measuring the maximum draught at 1/8 of the full beam from the centreline in way of the transverse section, at greatest beam

DK = depth of the keel, taken as the distance between the draught of the canoe body and the bottom of the keel.

12A.4.2.2 The permitted area of operation is dependent upon a **vessel's** range of stability, STOPS Numeral or **Design Category**. See Table 12A.4.3

12A.4.3 Assessment using RYA "STOPS" Numeral

12A.4.3.1 An **existing vessel**, or vessel built before April 2002 where an appropriate numeral is available, may have its permitted area category of operation based upon the RYA's STOPS Numeral. Information on the derivation of the STOPS Numeral may be obtained from the **Certifying Authority**. See Table 12A.4.3.

12A.4.3.2 An RYA STOPS numeral is not accepted for **vessels** built after April 2002.

12A.4.3.3 A **vessel** whose **area category of operation** is determined by 12A.4.3.1, which undergoes **modification(s)** that necessitates a reassessment of stability, may continue to have this assessed using the RYA STOPS Numeral.

12A.4.4 Assessment using Royal Ocean Racing Club SSS Numeral

12A.4.4.1 An **existing vessel** may have its permitted **area category of operation** based upon the SSS numeral calculated by the Royal Ocean Racing Club (RORC), provided it includes a self-righting factor based on an inclining experiment, and is shown on a valid IRC rating certificate.

12A.4.4.2 A **vessel** whose **area category of operation** is determined by 12A.4.4.1, which undergoes **modification(s)** that necessitates a reassessment of stability, may continue to have this assessed using the RORC SSS Numeral.

Table 12A.4.3 Permitted Areas of Operation, STOPS Numerals, STIX Values and Design Categories

	Minimum Required Standard				
Area Category of Operation	Range of Stability	STOPS Numeral	STIX	ISO 12217 **Design Category**	Permitted ISO Stability Assessment Options
2	90 + 60 x (24 – LOA) / 20	30	23	B	1
3	90 + 60 x (24 – LOA) / 25	20	23	B	1
4	90 + 60 x (24 – LOA) / 25	20	14	C	1 and 2
5	90 + 60 x (24 – LOA) / 25	20	14	C	1, 2, 5 and 6
6	90 + 60 x (24 – LOA) / 25	14	14	C	1, 2, 5 and 6

12B Vessels Required to be Issued with an Approved Stability Information Booklet

12B.1 Damage Survivability

Section 12B.1 applies to all **vessels** carrying 16 or more persons regardless of the certificated **area category of operation**, and those **vessels** operating in **area category of operation** 0 or 1 carrying 7 or more persons, subject to minimum safe manning levels being agreed by the **Certifying Authority**.

For the purposes of Section 12B, vessel means a **vessel** that is required to be issued with an approved Stability Information Booklet.

12B.1.1 General

12B.1.1.1 All **vessels** shall carry a copy of a Stability Information Booklet[21].

12B.1.1.2 Where a **vessel** is considered by the **Certifying Authority** to be unable to carry a Stability Information Booklet it shall be made available to **crew** on shore.

12B.1.1.3 In assessing survivability, the following standard permeabilities shall be applied:

Appropriated for:	Permeability %
Stores	60
Stores but not by a substantial quantity thereof	95
Accommodation	95
Machinery	85
Liquids	0 or 95 whichever results in the more onerous requirements

12B.1.1.4 A **vessel** shall meet the damage stability criteria for one of two methods:

.1 Option 1 (see 12B.1.2) considers minor hull damage scenarios with limited equilibrium trim and heel angles after damage; or

.2 Option 2 (see 12B.1.3) considers minimum length single **compartment** damage scenarios with more onerous residual stability, combined with increased allowable equilibrium angles after damage.

[21] For details of information to include within a Stability Information Booklet refer to Appendix 3 of this Code or the **MCA's** Stability Information Booklet: Load Line Vessel which is available free of charge from the **MCA** or **Certifying Authorities**.

12B.1.1.5 A **Certifying Authority** may approve alternative methods of assessing survivability that are at least as effective as the options set out in 12B.1.1.4.

12B.1.2 Damaged Stability, Option 1

12B.1.2.1 A **vessel** shall satisfy the following residual stability criteria where minor hull damage or failure of any one hull fitting in any one **watertight compartment** has occurred:

.1 the angle of equilibrium does not exceed 7 degrees from the upright;

.2 the resulting righting lever curve has a range to the downflooding angle of at least 15 degrees beyond the angle of equilibrium;

.3 the maximum righting level within that range is not less than 100 mm;

.4 the area under the curve is not less than 0.015 meter radians; and

.5 the **vessel** shall not float at a waterline less than 75 mm from the **weather deck** at any point.

12B.1.2.2 Residual stability criteria detailed in 12B.1.2.1 may be achieved by fitting water-tight subdivision(s). A **Certifying Authority** may approve alternative methods that are at least as effective as **watertight** sub-division(s). Any damage to a **watertight** subdivision shall be assumed to be major.

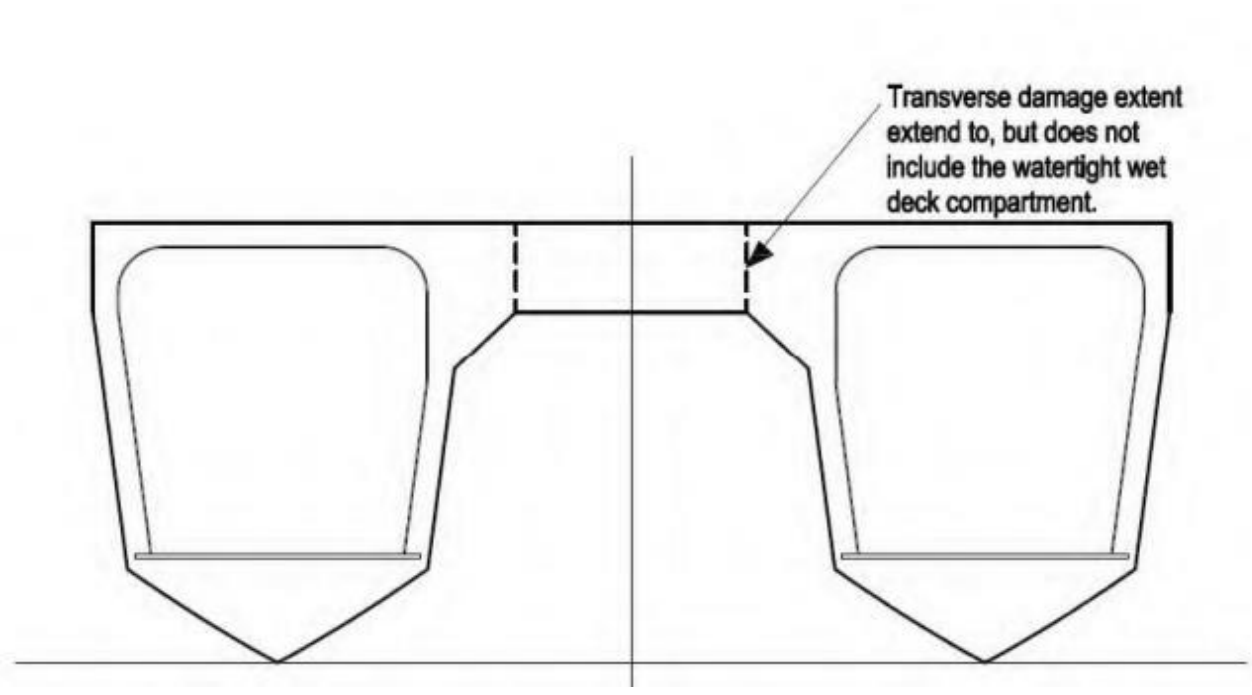
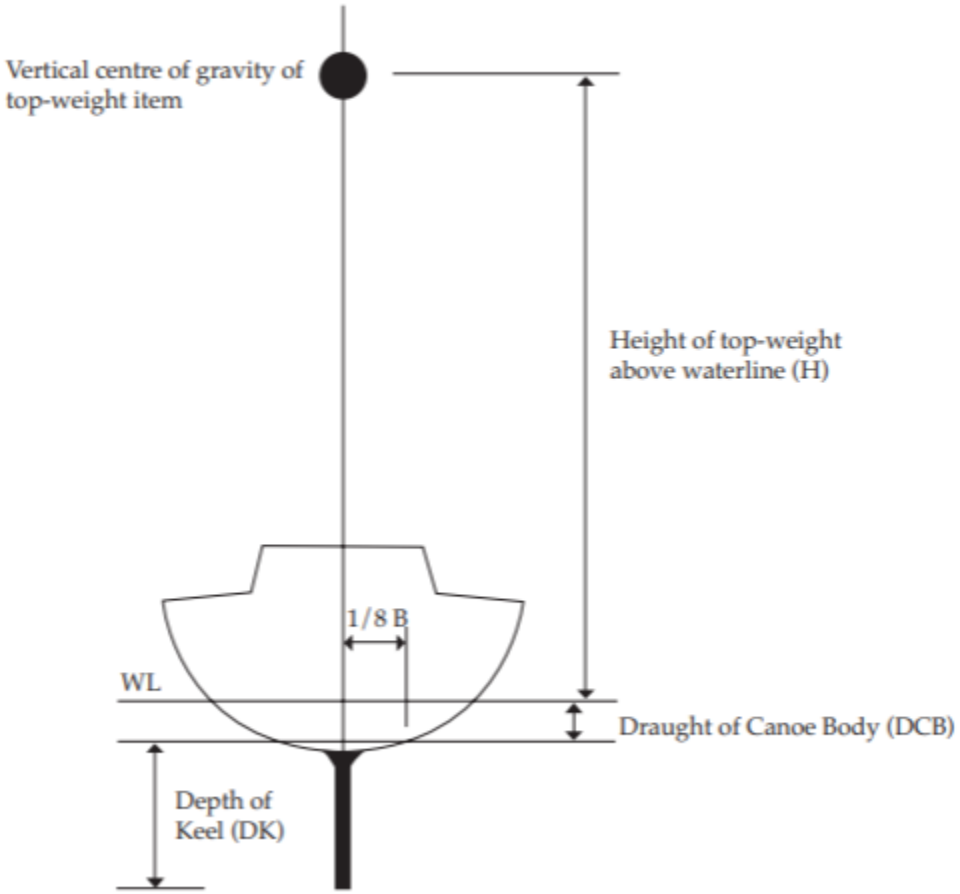


Figure 12A.4.2.1 Vessels with Top Weight Items



12B.1.3 Damaged Stability, Option 2

Any **weathertight** doors or openings leading from undamaged accommodation or **machinery spaces** to the **weather deck** shall be classed as downflooding points.

12B.1.3.1 Damaged Stability where One Compartment is Flooded

12B.1.3.1.1 Damaged stability shall be calculated assuming one **compartment** is flooded. The extent of damage for the purpose of these calculations shall include the following:

.1 A damage length not exceeding 10% **length**. The damage length need not apply within the forepeak and aftpeak **compartment(s)**. Where the distance between two transverse **watertight** bulkheads is less than the damage length, one or more bulkheads shall be disregarded in the damage stability calculations so that the **compartment** length considered is equal or above the damage length;

.2 The transverse extent of damage for monohulls shall be **up to** and including the centre line of the **vessel**.

A catamaran shall be considered to have damaged the full extent of one hull but does not include the **watertight** wet deck **compartment** provided the two hulls are totally independent and do not have cross connections.

A trimaran shall be considered to have damaged the wing and centre **compartments up to** the centre line of the **vessel**;

.3 The vertical extent of damage shall be assumed to be the full vertical extent of the **vessel**;

.4 The shape of the damage to the **vessel** shall be assumed to be a rectangular block.

12B.1.3.1.2 **Watertight compartments** which meet the following criteria do not need to be considered in the damaged stability calculations:

.1 aft of the transom and does not form part of the hull length; and

.2 does not extend below the design waterline (such as overhangs and appendages).

12B.1.3.1.3 Where damage of lesser extent than considered in 12B.1.3.1.1 could result in equivalent or more severe impact on **vessel's** stability this shall be included within damaged stability calculations.

12B.1.3.2 Damaged Stability where all the Forward Compartments are Flooded

Section 12B.1.3.2 only applies to **multihull vessels**.

12B.1.3.2.1 Damaged stability shall be calculated when all forward **compartments** are flooded.

12B.1.4 Multihull Vessels

12B.1.4.1 Section 12B.1.1 shall apply to multihull **motor vessels** carrying 16 or more persons or operating in **Area Category of Operation** 0 and 1 carrying 7 or more persons. See Section 12B.6 for multihull **sailing vessels**.

12B.1.4.2 Where a **multihull vessel** is of unconventional design or cannot meet the damage criteria of 12B.1.1, the results of the calculations shall be submitted to the **Administration** for assessment.

12B.1.4.3 A motor **multihull vessel** failing to comply with the criteria of either Section 12B.3.8 or 12B.3.9 may be given special consideration. In such a case, calculations shall be submitted to the **Administration** for assessment.

12B.1.4.4 A **multihull vessel** shall be fitted with **engine spaces** that are separated by a **watertight** bulkhead.

12B.1.4.5 Where a monohull vessel cannot comply with the specified criteria, due to its hull form displaying stability characteristics similar to that of a **multihull vessel**, the stability criteria for a **multihull vessel** may be applied, as appropriate for **sailing** or **motor vessels**.

12B.2 Vessels Required to have Approved Damage Stability Calculations

12B.2.1 A **vessel owner/operator** shall ensure that the damage stability calculation(s):

.1 are verified by a **competent** person(s);

.2 use appropriate methods and procedures for calculations;

.3 are included in the Stability Information Booklet; and

.4 are in accordance with the requirements of Section 12B.1.

12B.2.2 A **vessel owner/operator** shall either submit two hard copies or one electronic copy, as agreed, of the damage stability calculations to the **Certifying Authority** for approval.

12B.2.3 Where the **Certifying Authority** is satisfied that the damage stability methods meet the requirements of 12B.1, it shall:

.1 issue a formal letter to the **vessel** owner(s); and

.2 return two marked copies of the damage stability calculations to the **vessel** owner(s) with which includes the name of the **Certifying Authority**, the approval date and the words “RESULTS APPROVED”.

One marked copy may be electronic, if to the satisfaction of the **owner/operator**.

12B.3 Intact Stability

12B.3.1 The lightship weight, vertical centre of gravity (VCG) and longitudinal centre of gravity (LCG) of a monohull **vessel** shall be determined from the results of an inclining experiment.

12B.3.2 An inclining experiment may not produce satisfactory results for **vessels** where the VCG is less than one third of the metacentric height (GM) over the range of standard operating conditions (such as multihulls). In such cases the LCG shall be obtained by a displacement check or by weighing with two gauges. The lightship VCG may be obtained by an accurate weight estimate calculation with a margin added. In no case shall the lightship VCG be taken below main deck level. Details of the estimated lightship weight, LCG and VCG shall be submitted to the **Certifying Authority** at an early stage for verification.

12B.3.3. The lightship weight may include a margin for growth of **up to** 5% of the lightship weight, positioned at the LCG and vertical centre of the **weather deck** amidships or the lightship VCG, whichever is higher, where the **Certifying Authority** is satisfied that the margin of growth will not affect the safety of the **vessel**.

12B.3.4 Curves of static stability (GZ curves) shall be produced for:

.1 loaded departure, 100% consumables;

.2 loaded arrival, 10% consumables;

.3 anticipated service conditions; and

.4 conditions involving lifting appliances (where appropriate).

12B.3.5 Simplified stability information in the form of maximum VCG data shall be provided including a worked example.

12B.3.6 Maximum free surface moments shall be included within the loaded departure condition, and as a minimum, factored according to tank percentage fill for all other conditions.

12B.3.7 Buoyant structures which are fixed to superstructures, **deckhouse**, masts or rigging shall not be included when calculating the range of positive stability.

12B.3.8 The curves of static stability for the loaded conditions shall meet the following criteria:

.1 the area under the righting lever curve (GZ curve) shall not be less than 0.055 meter-radians **up to** 30 degrees angle of heel and not less than 0.09 meter-radians **up to** 40 degrees angle of heel, or the angle of downflooding if this angle is less;

.2 the area under the GZ curve between the angles of heel of 30 and 40 degrees or between 30 degrees and the angle of downflooding if less than 40 degrees, shall not be less than 0.03 meter-radians;

.3 GZ shall be at least 0.20 meters at an angle of heel equal to or greater than 30 degrees;

.4 the maximum GZ shall occur at an angle of heel of not less than 25 degrees;

.5 after correction for free surface effects the initial metacentric height (GM_o) shall not be less than 0.35 meters.

12B.3.9 Where a **vessel** with broad beam in relation to depth (such as a catamaran or multihull) does not meet the stability criteria given in section 12B.3.8, it shall meet the following criteria:

.1 the area under the righting lever curve (GZ curve) shall not be less than 0.085 meter-radians **up to** θ_{GZmax} when θ_{GZmax} = 15° and 0.055 meter-radians **up to** θ_{GZmax} when θ_{GZmax} = 30°.

θ_{GZmax} is the angle of heel in degrees at which the righting lever curve reaches its maximum.

When the maximum GZ occurs between θ = 15° and θ = 30° the required area under GZ **up to** θ_{GZmax} shall not be less than:

$A = 0.055 + 0.002 (30° - \theta_{GZmax})$ meter-radians.

.2 the area under the righting lever curve (GZ curve) between θ = 30° and θ = 40° or between θ = 30° and the angle of downflooding (θf), if this angle is less than 40°, shall not be less than 0.03 meter-radians;

.3 GZ shall not be less than 0.2 meter at an angle of 30°;

.4 the maximum GZ shall occur at an angle of not less than 15°;

.5 GM_o shall not be less than 0.35 meter.

12B.4 Stability of Vessels Fitted with a Lifting Device(s)

12B.4.1 Person retrieval system(s), anchor handling equipment, and davits for tenders need not be included in the stability tests of 12B.4 if the **Certifying Authority** is satisfied that the device does not have a detrimental effect on the stability of the **vessel**.

12B.5 Monohull Sailing Vessels

12B.5.1 Curves of static stability (GZ curves) shall be produced for:

.1 loaded departure, 100% consumables; and

.2 loaded arrival, 10% consumables.

These conditions may include a margin for growth of **up to** 5% of the lightweight, at the discretion of the **Certifying Authority**, with the VCG positioned at the upper deck amidships.

Buoyant structures intended to increase the range of positive stability shall not be provided by fixtures to either a mast, rigging or superstructure.

For standard production-series built vessels, the GZ may be derived from an inclining experiment conducting on another vessel of the series, subject to corrections for differences in outfit, to the satisfaction of the **Certifying Authority**.

Maximum free surface moments shall be included within the loaded departure condition and, as a minimum, factored according to tank percentage fill for the loaded arrival condition.

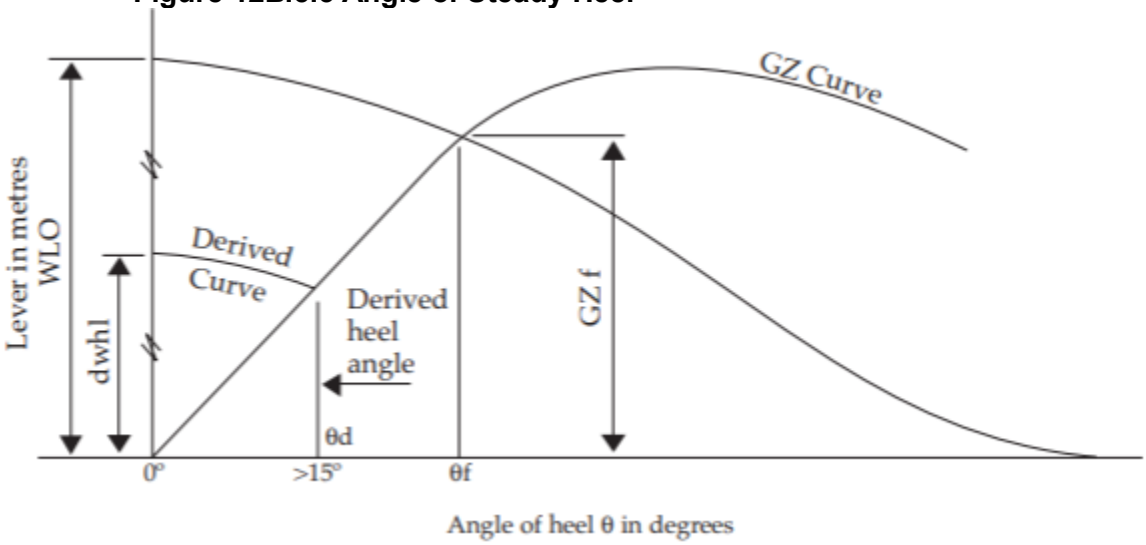
12B.5.2 The GZ curves required by 12B.5.1 shall have a positive range of not less than the angle determined by the formula in Table 12A.4.3, or 90°, whichever is the greater.

12B.5.3 In addition to the requirements of Section 12B.5.2, the angle of steady heel obtained from the intersection of a "derived wind heeling level" (DWHL) curve with the GZ curves referred to in Section 12B.5.1 shall be greater than 15 degrees (see Figure 12B.5.3).

$$\text{DWHL at any angle } \theta \text{ degrees} = 0.5 \text{ x WL0 x } \text{Cos}1{,}3\theta$$

$$\text{where WL0} = \frac{\text{GZf}}{\text{Cos}1{,}3\theta\text{f}}$$

Figure 12B.5.3 Angle of Steady Heel



Nothing that when using this method:

WL0 = the magnitude of the actual wind heeling level at 0 degrees which would cause the vessel to heel to the "downflooding angle" (θf) or 60 degrees whichever is least.

GZf = the lever of the **vessel**'s GZ at the "downflooding angle" (θf) or 60 degrees, whichever is least.

θd = the angle at which the "derived wind heeling" curve intersects the GZ curve. If θd is less than 15° the **vessel** will be considered as having insufficient stability for the purpose of this **Code**.

θf = the "**critical downflooding** angle" and is deemed to occur when the lower edge of openings having an aggregate area in square meters, greater than:

$$\frac{vessel's\ displacement\ in\ tonnes}{1500}\ \text{are immersed}$$

Openings used for regular **crew** access or ventilation (excluding air pipes to tanks) shall be considered when determining the downflooding angle. No openings of any size which leads to progressive flooding shall be immersed at an angle of heel of less than 40°.

Where immersion of openings in a **deckhouse** results in a vessel being unable to meet the required standard, the openings in the **weather deck** may alternatively be used to determine θf. In such cases, the GZ curve shall be derived without the benefit of the buoyancy of the **deckhouse**.

12B.5.4 **Vessels** complying with ISO 12217 Part 2 Options 1 and 2 of Section 6.1 may as an alternative to Section 12B.5.2, be assigned with a permitted area of operation in accordance with Table 12A.4.3, provided that the righting lever curve produced for this standard, is verified and corrected in accordance with Appendix 3 before

performing the calculations. In this case the calculated steady heel angle required by Section 12B.5.3 is to be reduced by 10%.

12B.5.5 A Stability Information Booklet shall be submitted to, and approved by, the **Certifying Authority**, and placed on board the **vessel**. The booklet shall include the maximum steady angle of heel for the worst sailing condition and curves of maximum recommended steady angle of heel for the prevention of downflooding in squall conditions. The steady angle of heel is to be calculated in accordance with either Section 12B.5.3 or 12B.5.4.

12B.6 Multihull Sailing Vessels

12B.6.1 Multihull **sailing vessels** over 6 meters in **length** shall be assessed using ISO 12217 Part 2. Multihull **sailing vessels** less than 6 meters in **length** may be specially considered by the **Administration**.

12B.6.2 Multihull **sailing vessels** over 6 meters in **length** are required to have a Stability Information Booklet approved by the **Certifying Authority**. The Stability Information Booklet shall include:

.1 maximum advised mean apparent wind speeds for each expected combination of sails that may be set as derived from ISO 12217 Part 2;

.2 wind speeds shall be presented in knots and shall include the note “in following winds, the tabulated safe wind speed for each sail combination should be reduced by the boat speed”.

12B.6.3 For the purposes of this Code the maximum safe wind speed shall be taken as the lesser of the values calculated by the formulae below, instead of those given in G.1 in ISO 12217. Both pitch and roll moments shall be calculated for all **vessels**.

$$Uw = 1.5\ x = \sqrt{\frac{LMr}{(A's\ h\ cos\ \Phi r\ +\ Ad\ b)}}$$

$$Uw = 1.5\ x = \sqrt{\frac{LMp}{(A's\ h\ cos\ \Phi p\ +\ Ad\ b)}}$$

Where:

U_w = maximum safe apparent wind speed (knots)

LM_R = limiting restoring moment in roll (newton-meters)

LM_P = limiting restoring moment in pitch (newton-meters)

A'_s = area of sails set including mast and boom (square meters)

h = height between the geometric centre of area of A'_s and the below-water profile of the hull, with centre/dagger boards lowered and the boat upright (meters)

Φ_R = heel angle at maximum roll righting moment (in conjunction with LM_R)

Φ_P = limiting pitch angle used when calculating LM_p (in conjunction with LM_R)

A_D = plan area of the hulls and deck (square meters)

b = distance from centroid of A_D to the centreline of the leeward hull

12B.6.4 Derivation of the maximum advised apparent wind speeds and the Stability Information Booklet shall be submitted to the **Certification Authority** for approval. Evidence shall be provided for the derivation of the stability data.

12B.6.5 The permitted area of operation shall be determined using Table 12B.6.5, including the maximum safe apparent wind speed with no sails set (bare poles condition).

Table 12B.6.5 Area of Operation, Design Category and Bare Poles Safe Wind Speed

MCA Area Category of Operation	12217 **Design Category**	"Bare Poles" safe wind speed should exceed
0	A	36 knots
1	A	36 knots
2	B	32 knots
3	B	28 knots
4	C	25 knots
5	C	25 knots
6	C	25 knots

12B.6.6 Trimarans operating in **Area Category of Operation** 0 or 1 shall have sidehulls each having a total buoyant volume of at least 200% of the displacement volume in the **fully loaded condition**.

12B.6.7 Trimarans operating in **Area Category of Operation** 2 shall have sidehulls each having a total buoyant volume of at least 150% of the displacement volume in the **fully loaded condition**.

12B.7 Approval and Carriage of a Stability Information Booklet

12B.7.1 A **vessel** shall carry a copy of a Stability Information Booklet.[22]

12B.7.2 Where a **vessel** is considered by the **Certifying Authority** to be unable to carry a Stability Information Booklet it shall be made available to **crew** on shore.

12B.7.3 A Stability Information Booklet shall:

.1 be produced by a **competent person**;

.2 match the form and content of the **Administration**'s model Stability Information Booklet;

[22] For details of information to include within a Stability Information Booklet refer to the **MCA's** Stability Information Booklet: Load Line Vessel which is available free of charge from the **Administration** or **Certifying Authorities**.

.3 meet the applicable requirements of section 12;

.4 use appropriate methods and procedures for calculations and the **vessel**'s stability standard; and

.5 include, where appropriate, instructions to be given to the **Master**.

12B.7.4 A **vessel owner/operator** shall either submit three hard copies or one electronic copy, as agreed, of the Stability Information Booklet to the **Certifying Authority** for approval.

12B.7.5 Where the **Certifying Authority** is satisfied that the Stability Information Booklet meets the requirements of 12B.7.3, it shall stamp the booklets with the following:[23]

.1 the name of the **Certifying Authority**;

.2 a file (or record) reference;

.3 number of pages in the booklet; and

.4 "APPROVED FORM AND CONTENT".

12B.7.6 Where the **Certifying Authority** has a concern(s) with regards to a **vessel's** stability they may request a full assessment in place of a form and content check in 12B.7.5.4 (see Appendix 3).

12B.7.7 Following approval of the Stability Information Booklet:

.1 two copies shall be returned to the **vessel owner/operator**. One copy shall be retained on board the **vessel** (or an electronic copy if agreed by the **Certifying Authority**) for the use of the **Master**. The second copy shall be retained for the record of the **vessel owner/operator**; and

.2 one copy shall be retained by the **Certifying Authority** for the records kept for the **vessel**.

12B.7.8 The **vessel owner/operator** shall be in possession of an approved Stability Information Booklet before the issuance of the **Certificate**.

12B.7.9 The **Master** of the **vessel** shall have a knowledge and understanding of the content of the **vessel**'s Stability Information Booklet and shall ensure that the **vessel** is operated within the limiting conditions stated in the Stability Information Booklet.

[23] Guidance on minimum levels of checking for **Certifying Authorities** leading to approval are set out in Appendix 3.

13 Freeboard and Freeboard Marking

The purpose of this section is to set out requirements for minimum **freeboard** and **freeboard** markings.

13.1 General

13.1.1 For the purposes of the freeboard assessment in this **Code** a person shall weigh a minimum of 82.5 kg.

13.1.2 **Existing vessels** transitioning from **MGN** 280 or the Yellow Code, Red Code or Blue Code a person may be considered to weigh a minimum of 75 kg. Where a **vessel** has its freeboard re-assessed, such as following major **modifications**, the freeboard re-assessment shall be conducted in line with the freeboard requirements of Section 13.

13.2 Motor Vessels

13.2.1 Minimum Freeboard for Vessels which Carry 1000 kg or less of Activity Related Equipment

Section 13.2.1 applies to **vessels** which carries **activity related equipment** or a combination of **passengers** and **activity related equipment** for which the **activity related equipment** element does not exceed 1000 kg, and which are not **rigid inflatable boats**, **inflatable boats** and **boats fitted with a buoyant collar**.

13.2.1.1 The minimum **freeboard** requirements shall be met by either:

.1 complying with ISO 12217. A declaration of conformity must be provided to the **Certifying Authority** for validation prior to issuing of the **Certificate**; or

.2 complying with the requirements of 13.2.1.2 and Table 13.2.1.1 as appropriate; or

.3 complying with the requirements of The Merchant Shipping (Load Line) Regulations 1998 (SI 1998 No. 2241), **as amended.**

13.2.1.2 The **freeboard** for a **vessel** shall be calculated with the **vessel** in sea water, upright, in its normal trim and **fully loaded condition** with weights to compensate for **activity related equipment** as certificated to be carried (each person on board assumed to weigh 82.5 kg).

13.2.2 Minimum Freeboard for Vessels which Carry Greater than 1000 kg of Activity Related Equipment

Section 13.2.2 applies to **vessels** which carry **activity related equipment** or a combination of **passengers** and **activity related equipment** for which the **activity related equipment** element exceeds 1000 kg, and which are not **rigid inflatable boats**, **inflatable boats** and **boats fitted with a buoyant collar**.

Table 13.2.1.1 The Minimum Freeboard Requirements

The minimum freeboard requirements of vessels which do not carry activity related equipment in excess of 1000 kilograms (kg)			
Vessel type **Vessel Length Overall**	**Vessels with a continuous watertight weather deck in accordance with section 5.3.1.1, which are not stepped, recessed or raised**	**Vessel with a continuous watertight weather deck in accordance with section 5.5.1.1, which may be stepped, recessed, or raised**	**Open boats**
		The raised portion(s) of the **watertight weather deck** should extend across the full breadth of the **vessel** and the average freeboard over the **length** of the **vessel** should comply with the requirements for a **vessel** with a continuous **watertight weather deck** which are not stepped, recessed or raised	
	The **freeboard**, measured from the lowest point of the **weather deck** to the water surface, shall not be less than:		The clear **height of side**, measured between the lowest point of the gunwale[24] and the water surface, shall not be less than:
<7m	300 mm	200 mm	400 mm
≥7m and <18m	as determined by linear interpolation.		
≥18m	750 mm	400 mm	800 mm

13.2.2.1 **Vessels** to which 13.2.2 applies must comply with the Merchant Shipping (Load Line) Regulations 1998 (SI 1998 No. 2241), **as amended**[25].

[24] The clear height of the side shall be measured to the top of the gunwale or capping or to the top of the wash strake if one is fitted above the capping.

[25] See MSN 1752 (M), **as amended**, Schedule 5 Table B and calculation for ships <24m and noting the corrections for Type B ships "other than timber freeboards" that are required for lack of superstructure, lack of sheer, block coefficient, depth and bow height shown in Schedule 4.

13.2.3 Freeboard Mark and Loading

13.2.3.1 **Vessels** which carries **activity related equipment** or a combination of **passengers** and **activity related equipment** for which the **activity related equipment** element does not exceed 1000 kg, and which are not **rigid inflatable boats**, **inflatable boats** and **boats fitted with a buoyant collar** shall be marked with a **freeboard** mark consisting of a bar of 300 mm in length and 25 mm in depth which shall:

.1 be permanent and painted black on a light background or in white or yellow on a dark background;

.2 have no assigning letter marking placed on the bar marking; and

.3 be positioned such that the top of the line is positioned at the waterline corresponding to the assigned **freeboard** to deck edge amidships.

13.2.3.2 **Vessels** which carry **activity related equipment**, **passengers** or any combination thereof for which the **activity related equipment** element exceeds 1000 kg, and which are not **rigid inflatable boats**, **inflatable boats** or **boats fitted with a buoyant collar** shall be marked with a **freeboard** mark in accordance with the Merchant Shipping (Load Line) Regulations 1998 (SI 1998 No 2241), **as amended**, and have a scale of draught marks marked clearly at the bow and stern, on both sides of the **vessel**. The longitudinal position of the draught marks, relative to the longitudinal datum for the hydrostatic data, shall be recorded in the Stability Information Booklet, where provided. (See **MIN** 724).

13.2.3.3 Where the **Certifying Authority** considers that the addition of a scale of draught marks is not practicable, application for exemption from this requirement shall be submitted to the **Administration**.

13.2.3.4 The **freeboard** mark shall:

.1 consist of a ring 300 mm in outside diameter and 25 mm wide, intersected by a horizontal line 450 mm long and 25 mm wide the upper edge of which passes through the centre of the ring;

.2 the top of the intersecting line shall be positioned at the waterline corresponding to the assigned **freeboard** to deck edge amidships;

.3 be painted black on a light background or in white or yellow on a dark background; and

.4 have an assigning letter marked on the bar of the ring which shall be D on the left and T on the right when the **Administration** is the **Certifying Authority**. In the case of any other **Certifying Authority**, as identified in MIN 358 (M), **as amended** the assigning letters shall be U on the left and K on the right.

13.2.3.5 A **vessel** shall not operate in a condition which will result in its **freeboard** marks being totally submerged when it is at rest and upright in calm sea water.

13.2.3.6 A **freeboard** mark for Fresh Water Allowance is not required.

13.2.3.7 Where the line of the deck is not clearly discernible, a **vessel** shall be provided with a deck line. The deck line shall be clearly marked amidships on each side of the **ship** to indicate the position of the **freeboard** deck.

13.2.3.8 Where it is not possible to mark the deck line in its required position, the **Certifying Authority** may approve the deck line to be marked in an alternative location as near as possible to the required position.

13.2.4 Rigid Inflatable Boats, Inflatable Boats and Boats Fitted with a Buoyant Collar

Section 13.2.4 defines the requirements for **rigid inflatable boats**, **inflatable boats** and **boats fitted with a buoyant collar**.

13.2.4.1 The minimum **freeboard** of a **rigid inflatable boat**, **inflatable boat** or **boat fitted with a buoyant collar** shall be:

.1 300 mm measured from the upper surface at the lowest point of the buoyancy tubes;

.2 250 mm at the lowest part of the transom or if there is no transom the **vessel** shall not be capable of being swamped and shall be able to quickly clear any water from the **weather deck** which shall be demonstrated to the satisfaction of the **Certifying Authority**; and

.3 measured with weights to compensate for all its equipment, fuel, **activity related equipment**, the number of persons for which it is certified to carry on board, with the boat re-trimmed as necessary to represent a normal operating condition, and with the drainage socks, if fitted, tied up (each person taken as 82.5 kg).

13.2.4.2 **Vessels** operating in **area category of operations** 4, 5 or 6, which do not meet the **freeboard** requirement of 13.2.4.1 at the transom, may still be approved by the **Certifying Authority**, provided it can be demonstrated that the boat is self-draining when moving ahead, and has a substantial reserve of buoyancy (>10%).

13.2.4.3 Where the **vessel** is certified to carry more than 1000 kg of **activity related equipment** it shall:

.1 meet the minimum **freeboard** requirements for a **vessel** with a continuous **watertight weather deck** in accordance with Section 5.5.1.1, which is not stepped, recessed or raised (see Table 13.2.1.1);

.2 have a **freeboard** assigned in accordance with the Merchant Shipping (Load Line) Regulations 1998 (SI 1998 No. 2241) **as amended**; and

.3 have a scale of draught marks marked clearly at the bow and stern.

The minimum **freeboards** shall be recorded on the **SCV2** and the **maximum permissible weight** shall be recorded on both the **SCV2** and on the **Certificate** for the **vessel**.

13.3 Sailing Vessels

13.3.1 A **sailing vessel** required to be provided with a Stability Information Booklet, other than a **vessel** assessed in conjunction with Section 12B.5.4, shall have a **freeboard** mark placed on each side of the hull at the longitudinal position of the longitudinal centre of flotation for the maximum draught at which the stability of the **vessel** has been determined. This draught shall not be greater than the draught corresponding to the maximum displacement for which the scantlings have been approved.

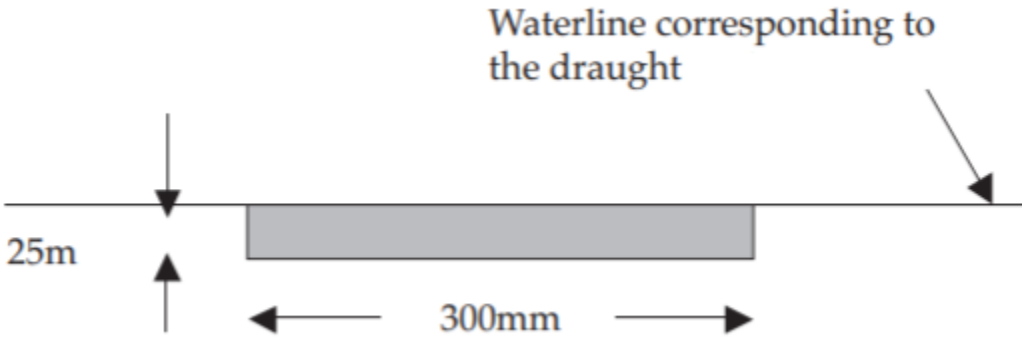
13.3.2 The **freeboard** mark shall be:

.1 300 mm in length;

.2 25 mm in depth; and

.3 painted black on a light background or in white or yellow on a dark background.

The top of the mark shall be positioned at the waterline corresponding to the draught given in Section 13.3.1, at the position of the longitudinal centre of flotation as shown in Figure 13.3.2 below.



13.3.3 A **vessel** shall not operate in any condition which will result in its **freeboard** marks being totally submerged when it is at rest and upright in calm seawater.

13.3.4 **Sailing vessels** with variable ballast may be specially considered on a case-by-case basis by the **Certifying Authority**, and such cases shall be reported to the **Administration**.

14 Life-Saving Appliances

The purpose of this section is to set out the minimum requirements for life-saving appliances on board.

14.1 General

14.1.1 The following life-saving appliances shall be marked in accordance with the guidelines in **IMO** Resolution MSC.481(102), **as amended**:

.1 liferafts;

.2 lifebuoys;

.3 lifejackets; and

.4 immersion suits.

14.1.2 The minimum required life-saving appliances are given in Table 14.1.2 below.

14.2 Liferafts

14.2.1 General Requirements for Liferafts

14.2.1.1 All liferafts shall be serviced at a service station approved by the manufacturer, and in accordance with the manufacturer's recommended service schedule. Exceptions are:

.1 valise liferafts;

.2 liferafts carried on **vessels** which operate in **Area Category of Operation** 2 or 3 outside the UK Search and Rescue Region where the sea temperature is less than 10°C; and

.3 open reversible liferafts constructed to **SOLAS** standard, Wheelmarked or **DfT** approved carried on **vessels** which operate in **Area Category of Operation** 6;

which shall be serviced at a maximum of annual intervals.

For all liferafts, certification of servicing must be submitted to the **Certifying Authority** at the compliance or **renewal examination**.

14.2.1.2 Inflatable liferafts may be permitted to have extended service intervals of up to 30 months, when meeting the requirements of the associated General Exemption. (See **MIN** 724).

14.2.1.3 **Vessel owners/operators** shall frequently inspect the outside of the liferaft storage container/valise for damage. If it is damaged it shall be checked by an approved service station.

Table 14.1.2 – Carriage Requirements for Life-saving Appliances

Area Category of Operation		6	5	4	3	2	1	0
Liferafts (see 14.2)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Total number of lifebuoys (see 14.3)	**<16 persons**	2	2	2	2	2	2	2
	≥ 16 persons	4	4	4	4	4	4	4
Lifebuoy with light (see 14.3)	**<16 persons**	N/A	1	N/A	1	1	1	1
	≥ 16 persons	N/A	2	N/A	2	2	2	2
Lifebuoy with buoyant line (see 14.3)	**<16 persons**	1	1	1	1	1	1	1
	≥ 16 persons	1	1	1	1	1	1	1
Lifebuoys without attachments (see 14.3) Note B	**<16 persons**	1	1	1	0	0	0	0
	≥ 16 persons	3	3	3	1	1	1	1
Additional buoyant line (see 14.3)	**<16 persons**	0	0	0	0	0	0	0
	≥ 16 persons	1	1	1	1	1	1	1
Lifejacket (see 14.4)		100%	100%	100%	100%	100%	100%	100%
Inflatable lifejacket rearming kit (see 14.4.5)		None	None	None	None	None	R	R
Thermal protective aids (TPA) (see 14.5)		See 14.5.2	100%	100%	100%	100%	100%	100%
Portable VHF with DSC[27] [26,27](see 17.4)		1	1	1	1	1	1	1
EPIRB[26,27] (see 17.5)		R	R or 1	1	1	1	1	2
Personal Emergency Radio Devices[27,28](see 17.6)		R or 1	R or 1	R	R	R	Yes	Yes
SART[26,27] (see 14.11)		None	None	None	None	None	2 Note C	2 Note C
General Alarm ≥ 16 persons (see 14.6)		None	None	None	None	None	Yes	Yes
General Alarm > 750 kW installed power (see 14.6)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Parachute flares (see Table 14.1.2 Note A)		None	4	None	4	4	6	12
Red hand flares (see Table 14.1.2 Note A)		2	6	2	6	6	6	6
Smoke signals (see Table 14.1.2 Note A)		2 buoyant or hand held	2 buoyant or hand held	2 buoyant or hand held	2 buoyant or hand held	2 buoyant or hand held	2 buoyant	2 buoyant
Means of recovery of persons from water (see 14.7)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Training Manual (see 14.8)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Instruction Manual for onboard maintenance (see 14.9)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Table of International Life-Saving Signals (see 14.10)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lifejacket spray hoods (see 14.4.6)		R	R	R	R	R	Yes	Yes
Additional Requirements for Sailing Vessels								
Lifebuoy with Dan-buoy		1	1	1	0	0	0	0
Lifebuoy with Dan-buoy and light		0	0	0	1	1	1	1

R	Strongly recommended.
1	Number of items to be carried or fitted.
100%	Number to be carried for percentage of persons on board. 100% indicates that every person on board shall be provided with the item.
Note A	Parachute flares, red hand flares, smoke signals, and other pyrotechnics shall be **UKCA** or **MED** approved ("Wheelmarked") (see 3.12.1) or shall comply with MSN 1676 (M) **as amended**. Hand held smoke signals need not be approved to **UKCA**, **MED** or MSN 1676 (M), **as amended**

[26] **SOLAS** 'A' PACK requirements can be found in **MSN** 1676 (M+F) **as amended**.

[27] The carriage of Portable VHF, EPIRB and SART/AIS-SART in this section may also be used to fulfil any carriage requirements detailed in Section 17 Radiocommunication Equipment. Table 17.2.1 provides further details of when these items shall be carried in specific area categories of operation.

[28] Strongly recommended for any **Single Handed operations** in **Area Category of Operation** 3, 4, 5 or 6.

Note B	Guidance on lifebuoy buoyant lines and grablines can be found in Chapter 18.28 of the Code of Safe Working Practices for Merchant Seafarers (COSWP)
Note C	Where a **vessel** operating in area category of operation 0 or 1 operates in accordance with 14.11.4, this carriage requirement may be reduced to 1

14.2.1.4 Hydrostatic Release Units (HRU) (other than the types which have a date limited life and are test fired prior to disposal) shall be serviced at maximum of annual intervals at a service station approved by the manufacturer. Also see Section 14.2.3.

14.2.2 Stowage of Liferafts

14.2.2.1 Liferafts shall:

.1 be stowed on or above the **weather deck**, where practicable, as appropriate to the **vessel's** design and intended operation, to prevent loss of the raft in a sea way, such that they float free[29], inflate and break free automatically, with the exception of valise liferafts which shall be stored in a dedicated locker which is readily accessible from the **weather deck**;

.2 be safely accessible by any persons in all weather conditions;

.3 be capable of being moved from its stowed position and stowed state to being launched in the water in the shortest practicable time[30];

.4 have launching instructions displayed;

.5 clear any projections and belting when launched; and

.6 if fitted with a float free arrangement, be secured through an approved and compatible HRU (see 14.2.3).

14.2.2.2 Other stowage and release mechanisms may be considered if they provide an equivalent level of safety to the approval of the **Administration**.

14.2.2.3 **Vessel owners/operators** shall demonstrate physical deployment[30] of liferafts:

.1 at compliance or **renewal examinations**;

.2 where any changes are made to the liferaft type/capacity; and

.3 where **modifications** are made to the liferaft stowage arrangements or location.

During the test the **Certifying Authority** need only witness the raft being moved to the side of the **vessel**, adjacent to any guard wires e.g. getting to a suitable launch site.

14.2.2.4 **Vessel owners/operators** shall follow the additional advice and guidance on the securing, stowage and launching of liferafts, and the fitting of the most common Hydrostatic Release Units in MGN 343 (M+F), **as amended**.

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[29] The liferaft retaining strap must be capable of being released quickly and easily e.g. by senhouse slip.
[30] For further details please see MGN 343 Hydrostatic release units (HRU): stowage and float free arrangements for inflatable liferafts (M+F), **as amended**.

14.2.3 Float Free Arrangements for Liferafts

14.2.3.1 Re-usable HRUs shall be serviced annually in accordance with the manufacturer's recommendations. Certification of servicing shall be submitted to the **Certifying Authority** at the **compliance** or **renewal examination**. Manufacturer's requirements, in respect of servicing and working life, shall be followed for disposable HRUs.

14.2.3.2 Where a **vessel** carries non-**SOLAS** standard and **UKCA** or non-**MED** approved liferafts that are stowed using HRU units, the **vessel owner/operator** shall ensure the chosen HRU is compatible with the size and standard of the liferaft.

14.2.4 Liferaft Carriage and Capacity Requirements

14.2.4.1 **Vessels** certificated to operate in:

.1 **area category of operation** 0; and

.2 **area category of operation** 1 which carry 16 or more persons.

shall carry enough liferafts to ensure that in the event of any one liferaft being lost or rendered unserviceable there is sufficient certified capacity in the remaining liferafts to accommodate all persons on board:

14.2.4.2 **Vessels** certified to operate in:

.1 **area category of operation** 1 and carrying fewer than 16 persons; or

.2 **area category of operation** 2, 3, 4, 5 or 6

shall be provided with a minimum of a single liferaft with capacity to accommodate all persons on board, or one or more liferaft with total combined capacity to accommodate all persons on board.

14.2.5 Liferaft Requirements

14.2.5.1 The minimum liferaft requirements based on **area category of operation** in which the **vessel** is operating are indicated in Table 14.2.5.1.

14.2.5.2 Liferafts provided on sailing **multihull vessels** shall be located so that they are accessible when the **vessel** is upright or after an inversion.

Table 14.2.5.1 – Liferaft Requirements

Requirements for liferafts	Vessels in Areas Category of Operation				
	0	1	2 - 3	4 - 5	6
Construction	Constructed to **SOLAS** standard and **UKCA** or **MED** approved, or **MCA DfT** approved	Constructed to **SOLAS** standard and **UKCA** or **MED** approved, or **MCA DfT** approved, or be built to the ISO 9650– Small Craft Inflatable Liferafts, Part 1, Type 1 and certified Note D to Part 3 of ISO 9650.			Constructed to **SOLAS** standard and **UKCA** or **MED** approved, or **MCA DfT** approved; or be built to the ISO 9650 – Small Craft Inflatable Liferafts, Part 1, Type 1, certified to Part 3 of ISO 9650; or may be the open reversible type, constructed to **IMO High Speed** Craft Code 2000 standard and **MED** approved ("Wheelmarked") or **DfT** approved. Liferaft(s)
Insulation	Have insulated floor and canopy	Have insulated floor and canopy except where a **vessel** operates exclusively in waters having a temperature of 10 degrees centigrade or higher (see Notes A and B)	For **vessels** operating outside the UK Search and Rescue region, where the mean sea temperature is less than 10 degrees centigrade, liferafts shall also have an insulated floor and canopy	Not required	
Equipment	Equipped with a **SOLAS** "A" PACK Note E	Equipped with a "**SOLAS** A PACK" Note C, E	Equipped with '' **SOLAS** ''B'' PACK' Note C	Equipped to a level equivalent to a **DfT** "E" Pack. Note E, Note C	
Stowage	Be contained in fibre reinforced **plastic** (FRP) containers		Be contained in fibre reinforced **plastic** (FRP) containers or a valise		

Note A — Sea temperature data may be found in sources such as the Admiralty Pilot for a given sea area and period.

Note B — The certification of the liferaft shall show this limitation.

Note C — This may, where necessary, include a **grab bag** to supplement the equipment integral to the liferaft. To facilitate rapid abandonment in an emergency, where a liferaft **grab bag** is provided, it shall be in an accessible position known to all on board. Equipment carried in the **grab bag** as required by these regulations, does not count towards the equipment the **vessel** itself must ordinarily carry, with the exception of TPAs described in 14.5.

Note D — The **Administration** has designated organisations listed in MSN 1874 (M+F), **as amended** as approved bodies for the purpose of carrying out approvals of equipment to undertake the examination, testing and certification of the equipment to ISO 9650 Part 3.

Note E — Requirements can be found in MSN 1676 (M), **as amended**.

14.3 Lifebuoys

14.3.1 Lifebuoys shall:

.1 not be of an inflatable type;

.2 be marked with the vessel's name and one other means of identification (e.g. Port of Choice, SSR number, home port if not registered etc.);

.3 in respect of **vessels** operating in **area categories of operation** 0, 1, 2, 3 and 5, be fitted with lights; and

.4 if of a light-weight type, be fitted with either a buoyant line or a drogue.

14.3.2 Where fitted, buoyant lines shall be a minimum of 18 metres in length[31].

14.3.3 For **sailing vessels** the Dan-buoy shall be attached to a lifebuoy and, where applicable, a light.

14.4 Lifejackets

14.4.1 Lifejackets shall be constructed to:

.1 **SOLAS** standard and **UKCA** or **MED** approved or **MCA DfT** approved; or

.2 BS EN ISO 12402, Part 3 for Level 150 lifejackets; or

.3 BS EN ISO 12402, Part 2 for Level 275 lifejackets (see **MIN** 724); or

.4 any other equivalent standard **approved** by the **Administration**; and

shall be of an appropriate size range (e.g. range of chest girth and user's body mass) for the persons on board.

14.4.2 All lifejackets shall be fitted with a whistle and retro-reflective materials.

14.4.3 For a **vessel** operating in **area category of operation** 0, 1, 2, 3 or 5, all lifejackets shall also be fitted with a light.

14.4.4 A suitable lifejacket shall be provided for each person on board (including a suitable lifejacket provided for each person on board under 32 kg). If the lifejackets are of an inflatable type, an additional 2 lifejackets shall also be provided per **vessel**.

14.4.5 Inflatable lifejackets shall be of the compressed gas inflation type, with either manual or automatic inflation, and fitted with oral top up valves.

14.4.6 **Vessels** operating in **area categories of operation** 0 or 1 are recommended to carry an appropriate rearming kit for each inflatable lifejacket on board.

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[31] Guidance on lifebuoy buoyant lines and grablines can be found in Chapter 18.28 of the Code of Safe Working Practices for Merchant Seafarers (COSWP).

14.4.7 **Vessels** operating in **area categories of operation** 0 or 1 shall carry an appropriate spray hood for each lifejacket on board which is compatible with spray hoods.

Vessels operating in **area categories of operation** 2, 3, 4, 5 or 6 may carry an appropriate spray hood for each lifejacket on board which is compatible with spray hoods.

14.4.8 Lifejackets which are only inflated orally are not permitted.

14.4.9 Inflatable lifejackets shall be serviced[32] annually in accordance with the manufacturer's recommendations. A record of the service shall be made as part of the **vessel's** Safety Management System (see Section 30).

In intervening years inflatable lifejackets shall be inspected at a maximum of annual intervals in accordance with the manufacturer's recommendations.

14.4.10 Certification of servicing shall be submitted to the **Certifying Authority** at the **compliance** or **renewal examination**.

14.4.11 Donning instructions for the types of lifejackets carried shall be displayed in a position(s) that is clearly visible or accessible to all persons on board the **vessel**, and shall clearly indicate the relevant type of lifejacket for each set of instruction.

14.4.12 Where a **vessel** carries more than one type of lifejacket, the **Master** shall ensure that the safety briefing required by Appendix 7, Section 6.2 provides instruction on each type of lifejacket carried onboard. Any two lifejackets of "32 kg or more" or any two lifejackets of "under 32 kg" respectively, may be regarded as being of the same type providing that there are no differences between donning instructions.

14.5 Thermal Protective Aids (TPAs)

14.5.1 For **vessels** operating in **area categories of operation** 0, 1, 2, 3, 4 or 5 a TPA shall be provided for each person on board.

14.5.2 **Vessels** operating in **area category of operation** 6 shall have TPAs provided for all persons on board where:

.1 the sea surface temperature is 10 degrees centigrade or less, or

.2 the **vessel** has open reversible liferaft(s).

14.5.3 TPAs shall be **UKCA** or **MCA** approved.

14.5.4 TPAs may be stowed in the **grab bag**.

14.5.5 Where **immersion suits** are provided, they:

.1 may be of the non-insulated type;

[32] See either MGN 548 (M+F) **as amended** or MGN 553 (M+F), **as amended** for further guidance on the servicing of inflatable lifejackets.

.2 shall be compatible with the lifejackets provided;

.3 may be provided to satisfy the personnel clothing requirements of Section 22.

14.6 General Alarm

14.6.1 A **vessel** shall have a general alarm where it:

.1 is operating in **area categories of operation** 0 or 1; and

.2 is carrying 16 or more persons on board; or

.3 has total installed power (propulsion and electrical generation) greater than 750 kW.

14.6.2 A general alarm shall be audible in all parts of a **vessel**.

14.7 Recovery of Persons from the Water

14.7.1 An **efficient** means to enable the recovery of persons (whether conscious or unconscious) from the water shall be physically demonstrated to the satisfaction of the **Certifying Authority** at each **compliance** and **renewal examination.** (See **MIN** 724).

14.8 Training Manual

14.8.1 A **vessel's** training manual shall be stowed at a **control position** or **steering position**, and shall as a minimum set out instructions from the manufacturers of the life-saving appliances with the following items explained in detail:

.1 the need for warm clothing and awareness of risks associated with exposure;

.2 the number and positions of stowage of the life-saving equipment;

.3 donning of lifejackets;

.4 use of sea anchors (if carried by the **vessel**);

.5 recovery of persons from the water;

.6 illumination in launching areas;

.7 boarding, launching, and clearing the survival craft from the **vessel**;

.8 "Personal Survival at Sea" booklet, e.g. **MCA** Booklet **MCA**/075;

.9 best use of all survival equipment including equipment on survival craft;

.10 use of all aids to location;

.11 instructions for emergency repair of the life-saving appliances; and

.12 methods of retrieval of persons.

14.8.2 For **open boats**, **inflatable boats**, **rigid inflatable boats** and **boats with a buoyant collar** a **vessel's** training manual may be stowed in an alternative location on board the **vessel** to prevent damage due to exposure.

14.8.3 Alternatively, training manuals may be held on electronic devices providing the device can be sufficiently charged, and is able to be accessed on demand by all persons on board.

14.8.4 For a **sailing vessel** where the design of the **control position** or **steering position** makes stowage of the training manual in compliance with 14.8.1 impossible, a **Certifying Authority** may permit the provisions of 14.8.2 and 14.8.3 to be applied.

14.9 Maintenance of Life-Saving Appliances

14.9.1 A **vessel's** instruction manual for on board maintenance of life-saving appliances shall be stowed at a **control position** or **steering position**, and shall as a minimum set out the following instructions as appropriate:

.1 required criteria for inspection checklists;

.2 log of records of inspection;

.3 schedule of periodic maintenance;

.4 maintenance and repair instructions;

.5 list of replaceable parts; and

.6 list of sources for spare parts.

14.9.2 For **open boats**, **inflatable boats**, **rigid inflatable boats** and **boats with a buoyant collar** a **vessel's** instruction manual may be stowed in an alternative location on board the **vessel** to prevent damage due to exposure or may be held on electronic devices providing the device can be sufficiently charged, and is able to be accessed on demand by all persons on board.

14.9.3 Alternatively, for **open boats**, **inflatable boats**, **rigid inflatable boats** and **boats with a buoyant collar,** a **vessel's** instruction manual may be kept ashore providing the owner/operator is assured that the **crew** can competently perform any necessary maintenance task without reference to the manual during the voyage.

14.9.4 For a **sailing vessel** where the design of the **control position** or **steering position** makes stowage of the manual in compliance with 14.9.1 impossible, a **Certifying Authority** may permit the provisions of 14.9.2 to be applied.

14.9.4 **Vessels** operating on **bare boat charter,** including **open boats, inflatable boats, rigid inflatable boats,** and **boats with a buoyant collar,** shall be provided with the instruction manual required in 14.9.1 by the **vessel owner/operator**.

14.10 Table of International Life-Saving Signals

14.10.1 All **vessels** shall carry a Table of International Life-Saving Signals[33]. This shall be in the form of either one **SOLAS** No. 1 poster, or two **SOLAS** No. 2 posters.

14.11 Search and Rescue Locating Devices

14.11.1 **Vessels** certified to operate in **area category of operation** 0, 1, 2, 3 or 5 shall be provided with either:

.1 a waterproof and electric signalling lamp; and

.2 a searchlight; or

.3 a portable **daylight** signalling lamp with searchlight capability.

14.11.2 **Vessels** operating outside the areas covered by dedicated Search and Rescue (SAR) assets shall carry one of the following in addition to the **EPIRB**:

.1 a Radar SART (see **MIN** 724);

.2 an AIS-SART (see **MIN** 724); or

.3 an **EPIRB**-AIS beacon.

14.11.3 **Vessels** certified to operate in **area categories of operation** 0 or 1 shall carry a Search and Rescue Transponder (SART) in line with 14.11.2.

14.11.4 A second SART shall also be carried unless:

.1 a **vessel** operates in areas covered by dedicated Search and Rescue (SAR) assets; and

.2 the **EPIRB** provided has a 121.5 MHz locator beacon and is one of the non-float free type for placing in a liferaft.

[33] Alternatively, **MCA** Leaflet "Life Saving Signals 2021" may be posted in the wheelhouse, or in the case of a sailing vessel, at the **steering position** if a wheelhouse is not fitted

15 Fire Safety

The purpose of this section, alongside the requirements of Section 16 Fire Appliances, is to provide a level of fire safety for the **vessel** which is designed to extinguish minor fires, prevent minor fires from becoming major fires and in the event of a major fire permit enough time for the evacuation of the **vessel**. This section provides minimum requirements to maintain a level of structural integrity that ensures the **vessel** remains habitable following a major fire.

15.1 Machinery Space

15.1.1 General

15.1.1.1 The **machinery space** shall be capable of being isolated to contain the fire extinguishing medium. (See **MIN** 724).

15.1.1.2 The following shall be capable of being stopped from outside, or remotely to, a **machinery space** in the event of a fire:

.1 fans within **machinery space(s)**;

.2 fans feeding **machinery space(s)**;

.3 pumps transferring fuel or oil;

.4 centrifuges;

.5 any other equipment in areas identified to increase risk of fire acceleration.

15.1.1.3 Systems fitted with automatic fans which stop in the event of a fire shall have a manual override.

15.1.1.4 Linkages forming part of the remote operation for flaps, cut-offs and similar devices shall be of a fire-resistant construction and shall be unlikely to fail in the event of a fire.

15.1.1.5 Materials stowed in a **machinery space(s)** must be:

.1 required for the operation of maintenance in the **machinery space**; and

.2 non-combustible.

15.1.1.6 Only non-combustible materials that are required for the operation and maintenance of machinery may be stowed in **machinery space(s)**. Stowed materials in a **machinery space(s)** shall be adequately secured and shall not obstruct access to or from the **machinery space(s)**.

15.1.1.7 In the **machinery space**, windows shall only be fitted as an observation port meeting the following requirements:

.1 fitted only in an internal boundary bulkhead or door;

.2 be non-opening;

.3 have a maximum diameter of 150 mm or equivalent area;

.4 fitted in a steel frame or other equivalent material;

.5 fitted with a permanently attached fire retardant cover with securing arrangements; and

.6 constructed of fire rated toughened safety glass, rated A0 in accordance with the **FTP Code**.

15.1.1.8 Where it is impracticable to have a **machinery space**, the engine or electric motor may be enclosed in an **engine box**. The **engine box** shall meet the requirements of sections 15.1.1.1 to 15.1.1.3. This does not apply to engines or electric motors of an outboard type.

15.1.2 Oily Wastes

15.1.2.1 A **vessel** shall have means to retain any oil leakage within the confines of the **machinery space**[34].

15.1.2.2 The **machinery space(s)** shall be kept clean and clear of any oily waste, and all oily residues shall be collected and retained on board (e.g. in a dedicated stowage tank) for discharge to on shore collection facilities.

15.1.3 Insulation

15.1.3.1 General

15.1.3.1.1 Any thermal or acoustic insulation fitted inside the **machinery space** shall be of a non-combustible material(s)[35].

15.1.3.1.2 Non-solvent based intumescent materials may be used where the insulation performance meets or exceeds the requirements for 'A' or 'B' Class Insulation.

15.1.3.1.3 Insulation shall be protected from damage and against impregnation by flammable vapours and liquids. Where insulation is cut, the edges shall be protected against such impregnation.

15.1.3.1.4 Vapour barriers and adhesives used in conjunction with insulation need not be of non-combustible materials but shall be kept to the minimum quantity practicable and their exposed surfaces shall have low flame-spread characteristics.

15.1.3.1.5 For a **vessel** constructed of steel:

.1 **machinery space** boundaries contiguous with **accommodation space(s)**;

.2 stores; and/or

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[34] Where it is impracticable to fit a metal drip tray, engine bearers may be used as an alternative if of sufficient height and have no limber holes.

[35] The insulation will be considered as being a non-combustible material if it complies with BS EN ISO 4589 Part 3, and the material has an Oxygen Index greater than 21, or if it fulfils the requirements of Appendix 5 or the IMO International Code for application of Fire Test Procedures (FTP Code 2010), Part 1, Non Combustibility Test.

.3 other areas identified to increase risk of fire acceleration shall be insulated as per the requirements of 15.1.3.1.1 – 15.1.3.1.4.

15.1.3.1.6 A **vessel** constructed of aluminium shall be assessed by the **Certifying Authority** regarding additional insulation requirements (in accordance with Sections 15.1.3.1.1 to 15.1.3.1.4) where high heat items pass through hull, decks or bulkheads.

15.1.3.1.7 Where an **existing vessel** transitioning from Blue Code, Yellow Code, Red Code or **MGN** 280 is fitted with insulation materials that do not meet the requirements of Table 15.1.3.2.1, the existing insulation materials shall be accepted as meeting the requirements of this **Code** until they reach end of life. Where insulation needs replacement, alteration, or modification from its original configuration, insulation materials used shall meet the standards of this **Code**.

15.1.3.1.8 Where an **existing vessel** transitioning from Blue Code, Yellow Code, Red Code or **MGN** 280 is not fitted with insulation materials within a **machinery space**, there is no requirement to fit insulation materials. However, where a **machinery space** is significantly modified from its original configuration to the extent where the fitting of insulation materials is possible and deemed necessary by the **Certifying Authority**, insulation materials used shall meet the standards of this **Code**.

15.1.3.2 Vessels Carrying 16 or more Persons or in Area Category of Operation 0 or 1, or when the Total Installed Inboard Engine Power Exceeds 750 kW per Machinery Space[7]

15.1.3.2.1 A **vessel** shall comply with machinery space insulation requirements specific to the vessel construction material listed in Table 15.1.3.2.1.

15.2 Open Flame Appliances and Gas Installations

15.2.1 Open flame gas appliances shall be designed and constructed for marine use, and where applicable shall comply with the requirements of Regulation (EU) 2016/426, **as amended**.

15.2.2 Installation of a gas appliance shall be in accordance with a **standard** listed in **MIN** 724.

15.2.3 Liquid gas appliances must be installed, used and maintained in accordance with Appendix 2A.

15.2.4 Combustible materials, and other surfaces, which do not have a surface spread of flame rating, shall not be left unprotected within the following distances of an open flame appliance:

.1 600 mm vertically above the appliance, for horizontal surfaces, when the **vessel** is upright;

.2 600 mm horizontally from the appliance, for vertical surfaces.

Table 15.1.3.2.1 – Machinery insulation requirements specific to the vessel construction material

Construction	Steel	Aluminium	Fibre Reinforced Plastic (FRP)	Wooden
Requirements for internal surface of **machinery space** boundaries and other areas identified as at risk from fire	No additional fire protection required.	Shall be insulated to a minimum B-15 Note F standard when tested in accordance with the procedure shown in the **IMO** International Code for application of Fire Test Procedures[36], **FTP Code** Annex 1 Part 3.	The **machinery space** boundaries shall: 1. be constructed to meet the B-15 standard when tested in accordance with the procedure shown in the **IMO** International Code for application of Fire Test Procedures[36], **FTP Code** Annex 1 Part 3,) Note A; or 2. be demonstrated to comply with the Fire Test for FRP in accordance with Appendix 4; or 3. comply with Annex 1 Part 11 of the **FTP Code** 2010 – Test for fire resisting divisions for HSC Note B; or 4. have an insulation **approved** by the **Administration** as satisfying the requirements of an "A" or "B" Class division for the construction material and division scantlings fitted to the hull, bulkheads and decks in their entirety except on the hull sides lower than 300 mm below the waterline; or 5. have layers of woven roving glass or additives added to the resin to improve and protect the structural integrity of bulkheads or structure(s) Note C; or 6. have layers of intumescent polyester, epoxy, vinyl ester or phenolic resin surface coatings used to improve and protect the structural integrity of bulkheads or structure(s). Note D, E	**Machinery space** boundaries constructed of wood shall have an equivalent level of fire protection compared to vessels constructed of FRP. Note G For vessels constructed of wood measures shall be taken to prevent absorption of oil into the structure.
Requirements for external surface of **machinery space** boundaries and other areas identified as at risk from fire	With the exception of the hull, shall be coated with finishes which have a Class 1 surface spread of flame rating when tested in accordance with **MIN** 724.	Insulation shall be fitted to the hull, bulkheads and decks in their entirety except for areas of the hull positioned 300 mm or more below the waterline.		

[36] **IMO** International Code for application of Fire Test Procedures, 2010, Resolution MSC.307(88)

Note A Except that in paragraph 3.3, for **load-bearing divisions**, the structural core temperature shall not exceed the heat deflection temperature (HDT) of the resin in the laminate; and that in paragraph 3.5.1 this does not have to be a non-combustible material.

Note B Acceptable insulations shall have the notation of 'Fire-resisting divisions 60'. The approval shall state the orientation of the division and whether the division is load bearing or non-load bearing.

Note C Any addition of woven glass or additives shall meet manufacturer's recommendations.

Note D A vessel owner shall provide a declaration attesting to the suitability of the coatings from the manufacturer.

Note E Solvent borne intumescent paints are not acceptable.

Note F For vessels constructed of aluminium insulation approved to A-15 standard (with steel) will be considered acceptable.

Note G A metallic bulkhead conducts heat very well, and the main reason for the fitting of structural fire protection is to stop the spread of fire from one **compartment** to the next. It is worth remembering that (aluminium aside) the survival of the structure is not of primary concern. However, where wood and composites are concerned, the opposite is true. In this case, the structure is an insulator. The downside of these materials is that they have relatively poor structural response to heat. It is for this reason that insulation is required to be fitted to these structures. So in effect, we are not concerned through spread of fire through conduction more with the collapse of the structure. In this regard, assuming that the structure has been sufficiently protected to ensure no collapse we are then interested to know what represents a "worst case" thermally for the bulkhead.

15.2.5 Curtains, or any other suspended textile materials, shall not be within 600 mm of any open flame appliance.

15.2.6 Materials which are closer than described in Sections 15.2.4 and 15.2.5 to an open flame appliance shall:

.1 be non-combustible; or

.2 have a surface finish with a Class 1 spread of flame rating which has been tested in accordance with a recognised **standard.** (See **MIN** 724).

15.2.7 Alternatively to the requirements of 15.2.4, 15.2.5 and 15.2.6, installed materials shall comply with a **standard** listed in **MIN** 724.

15.2.8 Open flame appliance(s) shall be inspected by a Gas Safe Registered marine qualified technician (or by an equivalently qualified technician or recognised body if outside the UK) and shall be issued with a safety certificate. Inspections shall be carried out following installation and annually thereafter.

15.3 Liquid Fuelled Appliances

15.3.1 **Liquid Fuel** Appliances shall only run on **diesel**[37].

Where this is not practicable, alternative fuel types which can be demonstrated to provide an equivalent level of safety may be considered on a case-by-case basis, subject to the approval of the **Administration**.

15.3.2 **Liquid Fuel** Appliances shall be designed and constructed to meet the following general requirements:

.1 be suitable for marine use;

.2 be able to operate at angles of 15 degrees in any direction;

.3 have overheat control devices;

.4 have a flame failure device if the fuel supply is pressurised, unless it is a wick type burner.

Appliances shall be installed in accordance with the appliance manufacturer's instructions. Any **modifications** to the appliance shall be done in consultation with the appliance manufacturer.

15.3.3 Fuel tanks, fuel pipes and their installation for appliances shall be fitted in accordance with the requirements of Sections 8.9 to 8.11.

15.3.4 Exhaust systems shall be installed in accordance with the appliance manufacturer's instructions. Exhaust systems and surrounding structures shall be arranged to allow heat dissipation and shall be protected from heat damage.

15.3.5 Appliances shall be installed so that the outgoing products of combustion pass through sealed ductwork terminating outside the **vessel**.

[37] **Diesel** is the only fuel with a flashpoint under 60°C which is permitted for use in **cookers** or **heating appliances**. The use of petrol is not permitted for **cookers** or **heating appliances**

15.3.6 Operating controls for appliances shall be easily accessible and in a safe location to prevent the likelihood of injury.

15.3.7 In the event of fire a **liquid fuel** appliance(s) shall be capable of being isolated by means of a valve(s) operated from outside of the space in which the **liquid fuel** appliance(s) is located.

15.3.8 Where user awareness for the safe operation of an appliance is required, a permanently legible sign shall be provided in the immediate vicinity covering:

.1 safe operation;

.2 refuelling procedure (if applicable); and

.3 any unique hazards involved with its use.

15.3.9 **Liquid fuel** appliances must be installed, used and maintained in accordance with additional requirements for **liquid fuel** appliances, which are set out in Appendix 2A.

15.4 Portable Petrol Fuelled Equipment

15.4.1 Portable equipment powered by a petrol engine unless fully drained of fuel shall be stored on the **weather deck**, stowed in a deck locker or in a protective enclosure.

15.4.2 Where stowed in a deck locker or protective enclosure portable equipment powered by a petrol engine shall meet the following requirements to the satisfaction of the **Certifying Authority**:

.1 be vapour tight to the **vessel's** interior;

.2 be ventilated to atmosphere; and

.3 not openable from the **vessel's** interior.

15.4.3 A suitable receptacle shall be provided to collect any spillage which occurs during the filling and draining of a fuel tank for portable equipment powered by a petrol engine.

15.4.4 A safety warning sign shall be displayed by the stowage location of portable equipment powered by a petrol engine with details of any precautions to be taken when filling the fuel tank.

15.4.5 Gas bottles, if carried, shall be stowed in a secure manner at a safe distance away from any potential source of fire, and shall have the capability of being readily jettisoned overboard if necessary.

15.5 Assessment of the Ignitability of Upholstered Furniture

15.5.1 Upholstery covering fabrics shall satisfy the cigarette and butane flame tests in force at the time of initial certification. (See **MIN** 724).

15.5.2 For upholstered furniture and mattresses only Combustion Modified High Resilient (CMHR) foams shall be used.

15.6 Detection

15.6.1 General

14.6.1.1 All fire and gas detectors shall at a minimum be maintained and tested in accordance with the manufacturer's recommendations.

15.6.2 Fire Detection

15.6.2.1 Fire detectors complying with a suitable **standard** shall be fitted in the following locations (see **MIN** 724):

.1 **machinery space(s)**;

.2 **accommodation spaces**;

.3 all spaces containing open flame, gas or **liquid fuel** appliances;

.4 all spaces where electrical equipment or installations may pose a risk of fire; and

.5 all other areas as identified by the **Certifying Authority** as being at risk from fire.

15.6.2.2 Fire detector(s) shall be of an appropriate type to detect and respond to potential hazard(s) of the space in which they are located (e.g. smoke, heat, flame).

15.6.2.3 Where a fire detector(s) is fitted it shall be audible from the space(s) concerned, the **accommodation space(s)** and the **control position(s)** or **steering position(s)**, and be capable of being heard with doors closed, machinery running and in all anticipated weather and operational conditions[38].

15.6.2.4 **Machinery spaces** shall be fitted with fire detector(s) which detect smoke or heat or flame.

15.6.3 CO Detection

15.6.3.1 Where open flame, gas or **liquid fuel** appliances are installed in, or adjacent to accommodation areas, a carbon monoxide (CO) detector(s) shall be fitted in accordance with the manufacturer's instructions for detection.[39] (See **MIN** 724).

15.6.3.2 Where a CO detector(s) is fitted it shall be audible from the space(s) concerned, the **accommodation space(s)** and the **control position(s)** or **steering position**(s)**,** and be capable of being heard with doors closed, machinery running and in all anticipated weather and operational conditions. [40].

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[38] If a standalone fire detector does not meet the audible replication requirements of 15.6.2.3, interlinked fire detectors are a suitable means of achieving the required audible replication outside of the space(s) concerned.

[39] CO detection is not required when heating or cooking is undertaken using electrical cookers or heating appliances

[39] If a standalone CO detector does not meet the audible replication requirements of 15.6.3.2 interlinked CO detectors are a suitable means of achieving the required audible replication outside of the space(s) concerned.

15.6.3.3 A CO detector(s) shall also be provided in any space where a risk of exhaust gas accumulation could result in carbon monoxide poisoning to persons on board.

15.6.3.4 A CO detector(s) shall be provided in all **accommodation space(s)**.

15.6.4 Hydrocarbon Gas Detection

15.6.4.1 Any space which contains gas consuming appliances or into which flammable gas may leak or accumulate, shall be provided with a hydrocarbon gas detector and alarm. The hydrocarbon gas detector and alarm shall be designed to comply with a **standard** relating to electrical equipment in hazardous areas. (See **MIN** 724).

15.7 Means of Escape

15.7.1 General Requirements

15.7.1.1 All **vessels** shall have means of escape.

15.7.1.2 All escape routes shall be located so that a single hazardous event is not likely to cut-off all escape routes.

15.7.1.3 Any identified means of escape shall not endanger any person using it.

15.7.1.4 Any means of escape shall be clearly marked for its purpose on both side, and the function of each escape route shall be practically demonstrated to the satisfaction of the **Certifying Authority**.

15.7.1.5 Two separate means of escape shall be provided in:

.1 **accommodation spaces** containing sleeping bunks;

.2 any spaces identified by the **Certifying Authority** as being at high risk from fire; and

.3 **machinery** or **battery spaces** except where:

.1 usually unmanned during normal operation;

.2 any person entering and moving about the space is within 5 meters of the entrance at all times; or

.3 the entrance provides means of escape, at all times, in the event of fire.

15.7.1.6 Where a hatchway or companion hatch opening is used as part of an escape route it shall be capable of being opened from both sides.

15.7.1.7 The **Certifying Authority** may approve alternative arrangements to those set out in Section 15.7.1.5 only where compliance with 15.7.1.5 is impracticable due to the **vessel** design and construction and other mitigations are put in place to aid the escape of the persons on board the **vessel**. These shall be considered on a case-by-case basis, subject to approval of the **Certifying Authority**.

15.7.1.8 **Vessels** which have been built in accordance with the **standards** for small craft operating in **Design Category** C as provided in **MIN** 724 and as verified by an Approved or Notified Body in compliance with RCR Module B (EU type-

examination) together with either Modules C, D or F, or Module G (conformity based on unit verification), or undertaken a Post Construction Assessment as defined in the RCR carried out by an Approved or Notified Body may also be accepted.

15.7.1.9 Where a **vessel** has a **sister vessel** which is an **existing vessel** with a valid **Small Commercial Vessel Certificate** issued for the same or less onerous intended **area category of operation** where the means of escape are the same, this may also be accepted where documentary evidence is provided to the satisfaction of the **Certifying Authority.**

15.7.2 Sailing Multihull Vessels

15.7.2.1 Sailing **multihull vessels** over 12 meters in **length** which have not been built in accordance with the **standards** for small craft operating in **Design Category** C as provided in **MIN** 724 shall be fitted with an emergency escape hatch in each main inhabited **compartment** to allow the exit of personnel in the event of an inversion. Such escape hatches shall be located above both upright and inverted waterlines. See Section 12B.6.

15.7.2.2 Sailing **multihull vessels** over 12 meters in **length** which have been built in accordance with the **standards** for small craft operating in **Design Category** C as provided in **MIN** 724, are not required to comply with 15.7.2.1.

15.7.2.3 Alternatively to the requirements of 15.7.2.1 or 15.7.2.2 sailing **multihull vessels** over 6 metres in **length** which fully comply with Appendix 13, may meet the following requirements for means of escape. Such means of escape must be to the exterior of the **vessel**, and accessible from each main inhabited **compartment** when the **vessel** is inverted:

.1 a dedicated escape hatch; or

.2 a fixed panel held in place by a sealing strip and removeable bead; or

.3 a break-out panel comprising either a pre-defined area of hull skin which can be broken through in an emergency using special tools, or a fixed pane that can be broken with a sharp implement; or

.4 for Design Category C and D, a normal access opening that is accessible by a short swim underwater.

15.8 Fire Control and Safety Plan

15.8.1 **Vessels** required to have a Stability Information Booklet (see 12.1.1.3), or with a total installed power greater than or equal to 750 kW shall have a fire control and safety plan(s) which shall be prominently displayed at the **control position(s)** or **steering position**(s).

15.8.2 It is recommended that **vessels** not required to have a Stability Information Booklet, or with a total installed power less than 750 kW shall have a fire control and safety plan(s) which shall be prominently displayed at the **control position(s)** or **steering position(s)**.

15.8.3 The fire control and safety plan(s)[41,42] shall detail the following:

.1 the type and position of all fire appliances;

.2 the location of fire detectors;

.3 locations and means of control of systems and openings which shall be closed down in a case of a fire;

.4 a procedure for persons on board to follow prior to or in event of activation of the fixed fire extinguishing system;

.5 means of escape and any additional access points;

.6 the location(s) of life-saving appliances; and

.7 the location(s) of embarkation stations and muster points.

15.8.4 The fire control and safety plan(s) shall be kept up to date.

[41] Symbols used on the fire control and safety plan(s) shall comply with a recognised international standard where applicable.

[42] **Vessel owners/operators** shall be aware that some foreign flag administrations may also require fire control and safety plan(s) to be verified by the **Certifying Authority**.

16 Fire Appliances

The purpose of this section, alongside the requirements of section 15 Fire Safety, is to provide a level of fire safety for the **vessel** which is designed to extinguish minor fires, prevent minor fires becoming major fire and in the event of a major fire permit enough time for the evacuation of the **vessel**. This section provides minimum requirements to maintain a level of structural integrity that ensures the **vessel** remains habitable following a minor fire.

16.1 Protection of Machinery Spaces and Outboard Engines

16.1.1 General

16.1.1.1 The **owner/operator** of a **vessel** must comply with the applicable requirements in Table 16.1.1.1.

Table 16.1.1.1 – Protection of Machinery Space(s) and Outboard Engine(s)

Engine position	Criteria	Minimum Protection
Outboard Engine(s)	P ≤ 220 kW [a)]	1 portable fire extinguisher 5A/34B
	P > 220 kW	Portable fire extinguisher(s) total B capacity= 0,3P [b)]
Inboard **Diesel** engine(s)	P<120 kW	1 multi-purpose fire extinguisher[43] 5A/34B located adjacent to the main entrance of each **machinery space**.[e)]
	P>120 kW or Engine located in **engine box** above deck or engine **compartments** below deck.	- Portable fire extinguisher(s) to fire port [c)] or - Fixed fire extinguishing system according to 16.4.

P is the power rating in kW of the engine or engines in the space combined.
) Example: For 1 × 220 kW outboard engine the required minimum rating is 220 × 0,3 = 66B which corresponds to two 34B extinguishers.
) The fire rating of the portable extinguisher shall not be less than the minimum recommended by its supplier for use with the fire port and for the volume of the **engine box** or **space**.
All **open boats**, **inflatable boats**, **rigid inflatable boats** or **boats with a buoyant collar** which are **up to** 8 metres in **length** and are not fitted with a **substantial enclosure** or cooking appliance(s), shall be fitted with a minimum of two 34B fire extinguishers.

16.1.1.2 Where **machinery** or **accommodation spaces** are used for storing or charging devices or equipment fitted with engines or batteries (e.g. garages), the risk of fire in these spaces shall be specially considered by the **Certifying Authority**.

[43] Multi-purpose fire extinguishers have a capability to deal with both Category A fires involving solid materials, and Category B fires involving liquids or liquefiable solids, and may be marked with the multipurpose rating, e.g. 5A/34B.

16.1.2 Fire Ports in Engine Boxes

16.1.2.1 For **vessels** installed with fire port(s) in **engine boxes** as listed in Table 16.1.1.1, fire extinguishing medium shall be able to be discharged into the **engine box** without a person needing to enter the space.

16.1.2.2 Fire ports shall be:

.1 constructed of fire-resistant material;

.2 appropriately sized and positioned to accept the discharge nozzle;

.3 openable to provide access for discharge of the medium into the **engine box**;

.4 labelled with "Fire Port" or an appropriate graphical symbol[44]; and

.5 used with fire extinguishers equipped with suitably designed discharge nozzles.

16.2 Protection of Accommodation Spaces

16.2.1 Accommodation Spaces not Containing Sleeping Bunks or Cooking and Heating Appliances

16.2.1.1 A minimum of one 5A/34B rated portable fire extinguisher shall be located in each **accommodation space**[45], in accordance with the requirements of 16.3.

16.2.2 Accommodation Spaces Containing Sleeping Bunks

16.2.2.1 Where an **accommodation space(s)** has both sleeping bunks and cooking and **heating appliances**, it shall instead comply with the requirements of 16.2.3.

16.2.2.2 A minimum of one 5A/34B rated portable fire extinguisher shall be located in each **accommodation space** containing sleeping bunk(s) that are divided by watertight or fire resistant boundaries, in accordance with the requirements of 16.3. The extinguisher(s) shall be located within 5 meters from the centre of a sleeping bunk.

16.2.3 Accommodation Spaces Containing Cooking and Heating Appliances

16.2.3.1 **Accommodation spaces** containing cooking or **heating appliances** shall be protected in accordance with the requirements of Table 16.2.3.1. Where portable fire extinguishers are used they shall meet the requirements of 16.3.

16.3 Portable Fire Extinguishers

16.3.1 General Requirements

16.3.1.1 Portable fire extinguishers shall be marked in accordance with ISO 7165, BS EN 3 or equivalent[44].

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[44] If a graphical symbol is used, it must be explained in the owner's manual.
[45] Where **accommodation spaces** are protected by a fixed system according to Section 16.4, only one portable fire extinguisher need be provided for that space.

Table 16.2.3.1 – Protection of Accommodation Spaces with Cooking and Heating Appliances

Type of cooking/heating appliances(s)	Protection device(s)
Cooking and **heating appliances** without open flame	One 5A/34B rated portable fire extinguisher; or a fixed fire extinguishing system in accordance with the requirements of 16.4.
Cooking and **heating appliances** with open flame	One 5A/34B rated portable fire extinguisher; and either 8A/68B rated portable fire extinguisher(s), or a fire blanket in accordance with the requirements of 16.5; or a fixed fire extinguishing system according to 16.4.

16.3.1.2 Extinguishing media containing halons or per-fluorocarbons shall not be used. For details on accepted extinguishing media types see ISO 7165.

16.3.1.3 Portable fire extinguishers shall be located within close proximity of:

.1 the main **control position** or **steering position**;

.2 any permanently installed open flame, gas or **liquid fuel** appliances;

.3 fire ports for inboard engines;

.4 outboard engines.

to maximise efficiency in slowing, controlling or extinguishing the fire.

16.3.1.4 All portable fire extinguishers shall be readily accessible.

16.3.1.5 Portable extinguishers may be stored in a locker or other protected or enclosed space but shall remain readily accessible at all times. The locker or the enclosed space door shall identify[46] that it contains a portable extinguisher.

16.3.1.6 Portable extinguishers not certified or listed for marine use which are located where they may be exposed to water shall have the extinguisher operating nozzle and triggering devices shielded.

16.3.1.7 All portable fire extinguishers shall be serviced by a **competent person** in accordance with the servicing intervals listed in Table 1 of MGN 276 (M+F), **as amended**. A record of servicing shall be maintained in accordance with the vessel's Safety Management System (SMS). See Appendix 7,12.2.

16.3.2 Carbon Dioxide (CO_2) Fire Extinguishers

16.3.2.1 Portable carbon dioxide (CO_2) fire extinguishers may only be located in **accommodation spaces** where there is a risk of an electrical fire. The **owner/operator** shall consider the volume of carbon dioxide that could be released and the associated requirement for an appropriate means of ventilation in the event of discharge.

16.3.2.2 Portable carbon dioxide (CO_2) fire extinguishers shall not be located in **accommodation spaces** containing sleeping bunks.

16.3.2.3 A maximum of one portable carbon dioxide fire extinguisher may be located in an **accommodation space**.

[46] If a graphical symbol is used, it must be explained in the owner's manual.

16.3.2.4 Portable carbon dioxide fire extinguishers shall meet the requirements of an appropriate **standard.** (See **MIN** 724).

16.3.2.5 Portable carbon dioxide fire extinguishers shall each have a maximum capacity of 2 kg. Portable carbon dioxide fire extinguishers with a capacity exceeding 2 kg may be considered on a case-by-case basis subject to submission to, and satisfactory acceptance by the **Certifying Authority** of, a risk assessment.

16.4 Fixed Fire Extinguishing System

16.4.1 General Requirements

16.4.1.1 Where a fixed fire extinguishing system is installed in a **machinery space** (as listed in Table 16.1.1.1) it shall be of the **Administration**, or equivalent, approved type appropriate to the space to be protected.

16.4.1.2 Fixed fire extinguishing systems shall meet the manufacturer's installation and maintenance requirements and shall be serviced at minimum on an annual interval or inspected and maintained as per manufacturer's recommendations, whichever is more frequent.

16.4.1.3 Fixed fire extinguishing systems shall meet the:

.1 Merchant Shipping (Fire Protection – Small Ships Regulations 1998 (SI 1998 NO. 1011), **as amended**[47]; and

.2 MCA Fire protection arrangements (MSIS 12), **as amended**.

16.4.1.4 Fixed fire extinguishing media accepted by the **Administration** are as follows:

.1 medium expansion foam;

.2 high expansion foam;

.3 carbon dioxide (see **MIN** 724);

.4 pressure water spraying

.5 water mist/water fog;

.6 clean agents that contain as primary components one or more organic compounds containing elements fluorine, chlorine, bromine or iodine (e.g. hydrofluorocarbons);

.7 aerosols (solid pyrotechnic type) (see **MIN** 724).

16.4.1.5 Where a fixed fire extinguishing system automatically disperses extinguishing media into a **machinery space**, and there is risk of persons entering the **machinery space** when extinguishing media is being dispersed, there shall be:

.1 a visual alarm displayed outside the **machinery space**; or

.2 an operating procedure that prevents persons entering the space during activation of the fixed fire extinguishing system. The operating procedure shall form part of the vessels safety management system. Persons

[47] MSN 1666 (M) The Merchant Shipping (Fire Protection) Regulations 1998: Fixed fire detection alarm and extinguishing systems

onboard shall be briefed of actions to take by the **Master** or an appointed **crew** member prior to the voyage.

16.4.2 Fire Pumps

16.4.2.1 All **vessels**, unless meeting the provisions of 16.4.2.2 must be fitted with either:

.1 a power driven self-priming fire pump(s) which ensures that the fire main pressure and availability can be maintained following the loss of a **machinery space**; or

.2 a hand fire pump(s) outside the **machinery space** (where fitting of a power driven self-priming fire pump(s) is impracticable).

16.4.2.2 Alternatively to the requirements in 16.4.2.1:

.1 **vessels** of less than 15 metres in **length** and carrying 15 or fewer persons may carry one multi-purpose fire extinguisher to a recognised **standard** with minimum fire rating of 13A/113B, or smaller extinguishers giving the equivalent fire rating;

.2 **vessels** of 15 metres or more in **length** or carrying 16 or more persons may carry not less than two multi-purpose fire extinguishers to a recognised **standard**, each with minimum fire rating of 13A/113B, or smaller extinguishers giving the equivalent fire rating.

16.4.2.3 A fire pump shall be fitted with sea and hose connections capable of delivering one jet of water to any part of the **ship** through hose and nozzle, one fire hose of adequate length with a 10 mm nozzle and a suitable spray nozzle.

16.4.2.4 Where a **vessel** has two independent power bilge pumps fitted (see 11.2.1.1), one of these pumps may be used as a fire pump where an accessible change over arrangement is fitted. The ability to remove accumulated fire extinguishing water shall not be compromised, and contaminated bilge water shall not be pumped onto a fire.

16.5 Fire Blanket

16.5.1 A fire blanket shall meet the requirements of an appropriate standard. (See **MIN** 724).

16.5.2 A fire blanket shall be located in an area identified by the **Certifying Authority** to increase risk of fire acceleration, and shall be accessible for immediate use.

16.6 Fire Buckets

16.6.1 Where practicable or deemed necessary[48] all **vessels** shall carry at least two fire buckets with lanyards long enough to reach the sea from the **weather deck**. Buckets shall be of suitable material and size for their intended service.

[48] Larger vessels carrying multiple fire extinguishers and/or fixed fire extinguishing system(s) are considered to be exceed the minimum level of safety and are not required to carry fire buckets.

17 Radiocommunications Equipment

The purpose of this section is to set out requirements for **vessel** radiocommunications, including installation, operation, maintenance and testing.

17.1 The Global Maritime Distress and Safety System (GMDSS)

17.1.1 For all **vessels** the GMDSS Sea Area(s) that the **vessel** is permitted and equipped to operate in (see Table 17.2.1) shall be stated on the Certificate.

17.1.2 All **vessels** shall be equipped with a continuously available communication system for use in the GMDSS Sea Area, which shall provide capabilities for at least the following marine distress and safety communications (see also **MIN** 724):

.1 ship-to-shore distress alerts/calls by two independent means;

.2 shore-to-ship distress alert relays;

.3 ship-to-shore, shore-to-ship and ship-to-ship search and rescue coordinating communications;

.4 ship-to-shore transmission of Maritime Safety Information (MSI);

.5 receipt of shore-to-ship broadcasting of Maritime Safety Information; and

.6 ship-to-shore, shore-to-ship and ship-to-ship general communications.

17.1.3 Exceptions to 17.1.2 are:

.1 **Vessels** certificated to operate in **area category of operation** 4, 5 or 6, which can obtain up to date navigation and weather information by other means, are not required to be able to receive MSI by a communication system for use in the GMDSS.

.2 **Vessels** certificated to operate in **area category of operation** 6 only are not required to have a second means of transmitting ship-to-shore distress alert if the **vessel** is equipped with an alternative effective means of distress alerting (visual or non-GMDSS) that is approved by the **Certifying Authority**.

17.2 Carriage Requirements by GMDSS Sea Areas

17.2.1 The minimum radiocommunication equipment carriage requirements based on the GMDSS Sea Area(s) in which the **vessel** is operating are indicated in Table 17.2.1.

17.2.2 If a **vessel's area category of operation** changes the radiocommunication equipment fitted and carriage requirements shall be re-assessed and approved by the **Certifying Authority** for compliance with 17.2.1.

Table 17.2.1 – Carriage Requirements	Area Category of Operation																													
	6				5				4				3				2				1				0			
GMDSS Sea Areas	**A1**	**A2**			**A1**	**A2**			**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**	**A1**	**A2**	**A3**	**A4**
Fixed VHF Radio installation with DSC	1 or 1				1				1				1				1				1				1			
Portable VHF DSC Radio (see 17.4) [Note E]					0				0				0				1				1				1			
VHF Channel 70 DSC watch installation	1				1				1				1				1				1				1			
MF radio installation with DSC (See **MIN** 724)						1 [Note A] or 1				1 [Note A] or 1				1 [Note A] or 1				1 [Note A] or 1				1 [Note A] or 1				1 [Note A] or 1		
A recognised mobile satellite service for distress alerting and Enhanced Group Calls [Note D]		C1									1			1	1			1	1			1	1			1	1	
Personal Locator Beacons (PLB) [Error! Bookmark not defined. Error! Bookmark not defined.]	R	R			R	R			R				R				R				R				R			
Class M VHF MOB with AIS									R	R				R				R										
Class M VHF MOB with AIS					R			R	R				R				R											
EPIRB[49]							1	1	1 [Note B]				1 [Note B]				1				1				2			
NAVTEX receiver (See **MIN** 724)	C3				C1				1 [Note C]				1				1				1				1			

R	Recommendation Only
1	Number to be Fitted
C1	A carriage requirement where up to date navigation and weather information cannot be reliably obtained by other means as noted in 17.1.3.1.
C2	Recommended where visual or other non-GMDSS means of alerting is considered to be ineffective.
C3	Recommended where up to date navigation and weather information cannot be reliably obtained by other means (see 17.1.3.1).

Note A	Within UK waters no listening watch is conducted on MF by HM Coastguard, therefore alerting via MF DSC would be required.
Note B	For vessels operating in **area category of operation** 3 and 4, and in sea areas **Sea Area A4, A3 or A2**, carriage of an EPIRB is required. Where vessels operate in **Sea Area A1** in **area category of operation** 3 and 4 where visual or other non-GMDSS means of alerting is ineffective, an **EPIRB** is recommended to be carried.
Note C	For vessels operating in **area category of operation** 4, and in **Sea Areas A4, A3 or A2**, carriage of NAVTEX is required. Where a vessel operates in **area category of operation** 4 and **Sea Area A1** , NAVTEX is not required for voyages of less than 12 hours but is recommended to be carried.
Note D	For guidance on iridium satellite distress system, see **MIN** 724
Note E	Portable VHF DSC licensing is limited to UK territorial sea only.

17.3 Radio Installation

17.3.1 Where practicable, aerials shall be mounted on the highest point on the **vessel**. When the main aerial is fitted to a mast, which is equipped to carry sails, an emergency aerial should be provided. A **Certifying Authority** may accept alternative locations that provide at least equivalent levels of performance.

17.3.2 In UK areas where transmission quality may be reduced, **vessel owners/operators** should consider alternative radio communications such as Medium Frequency (MF) or Recognised Mobile Satellite Services. **Vessel owners/operators** should consider Table 17.2.1 Note D and if required seek advice from the **Administration** on whether such equipment should be carried.

17.3.3 All radio installations shall be located to aid operational availability and be protected against damage.

17.3.4 Fixed radio installation(s) shall be clearly marked with the **vessel's** call sign, any other codes applicable to the use of the radio, and a Maritime Mobile Service Identity (MMSI).

17.3.5 Fixed radio installation(s) shall have a clear summary of the radio distress, urgency and safety procedures displayed in full view of the radio operating position(s). Where a **vessel's** size or design make the display of information impracticable, this information shall be readily accessible nearby for efficient use in an emergency.

17.3.6 Where a fixed radio installation is supplied power through batteries integrated with and/or charge maintained via the **vessel's** electrical systems, the batteries shall:

.1 be capable of providing at least the minimum number of hours of operation to ensure effective use of the radio installation following the loss of the **vessel's** means to maintain and recharge the batteries; and

.2 be located in a position not likely to flood in normal operations or in the event of minor damage to the **vessel**; and

.3 be arranged so that radio communications, as far as practicable, are not interrupted in adverse conditions including extremes of temperature and harmful effects of water.

17.3.7 Where a fixed radio installation is powered by batteries independent of the **vessel's** electrical systems, the equipment shall:

.1 be provided with charging facilities capable of recharging the batteries to the required minimum capacity for the vessels typical voyage duration within 10 hours; or

.2 be provided with a back-up battery of a capacity sufficient for the intended voyage.

17.3.8 For 17.3.6 and 17.3.7, the minimum number of hours shall be determined via the vessels operational risk assessment(s), and at a minimum consider voyage time

for rescue and any operating or environmental conditions which may necessitate frequent radio use to facilitate rescue.

17.3.9 Where DSC equipment is installed that does not have its own **GNSS** receiver to provide position, it shall be provided with automatic position updating information from the onboard navigational receiver, or procedures put in place to ensure positional information is manually updated at intervals not exceeding 4 hours.

17.4 Portable VHF Radio

17.4.1 A **vessel** shall carry at least one portable VHF radio.

17.4.2 A portable VHF radio shall be capable of operation on Channel 16 and at least one additional voice channel in the international VHF marine band.

17.4.3 A portable VHF radio shall have brief and clear operating instructions provided if not already printed on the casing.

17.4.4 A portable VHF radio shall have means to attach to clothing or a lanyard with a low breaking strain safety link.

17.4.5 A portable VHF radio and spare batteries shall be protected against water damage, either by design or by a waterproof cover, to a depth of 1 meter for a period of 5 minutes.

17.4.6 A portable VHF radio, batteries and any waterproof covers shall not have any sharp projections that might damage a survival craft.

17.4.7 A **vessel** shall carry charging facilities or spare batteries able to provide at all times at least 8 hours of VHF radio operation. Batteries or seals shall be marked with an expiry date by the manufacturer and shall be in date.

17.4.8 Where a **vessel** is equipped with more than one liferaft, it shall carry one portable VHF radio per liferaft.

17.5 Emergency Position Indicating Radio Beacon (EPIRB)

17.5.1 **Vessels** required to carry a 406 MHz **EPIRB** (see Table 17.2.1) shall be installed in a location so that it is capable of floating free and activating automatically if the vessel sinks. This location shall also be easily accessible so that it can be manually released and placed in a liferaft.

17.5.2 Where compliance with 17.5.1 is impracticable, and the **vessel** carries less than 16 persons, the **EPIRB** may be stowed in an accessible, but not float-free location, and be capable of being placed in a liferaft.

17.5.3 **Vessels** operating in **area category of operation** 0 shall carry a second **EPIRB** stowed in an accessible place, where it is capable of being placed in a liferaft and need not be capable of floating free.

17.5.4 All **EPIRBs** shall be maintained in accordance with the manufacturer's recommendations. Batteries shall be replaced as required by a manufacturer approved service station.

17.5.5 All **EPIRBs** shall meet the mandatory registration requirements as detailed in MGN 665 (M+F)[49], **as amended.** (See **MIN** 724).

17.6 Personal Emergency Radio Devices

17.6.1 **Vessels** are recommended to meet the 406 MHz Personal Locator Beacon (PLB[49,50,51]) or Class M VHF DSC MOB with AIS carriage recommendations of Table 17.2.1. For guidance on PLBs see **MIN** 724.

17.7 Testing and Maintenance

17.7.1 A **vessel owner/operator** shall ensure that the radio equipment is tested and operating effectively prior to departure. Equipment shall be maintained regularly according to manufacturer's instructions.

17.8 Radio Watches

17.8.1 A **vessel**, while **at sea**, shall maintain a **continuous radio watch**:

.1 on VHF Digital Selective Calling (DSC), on Channel 70;

.2 for broadcasts of Maritime Safety Information (see **MIN** 724);

.3 on distress and safety DSC frequency 2187.5 kHz if fitted with a MF/HF DSC radiotelephone;

.4 for satellite shore-to-ship distress alerts, if fitted with a terminal for a recognised GMDSS satellite service.

17.8.2 A **vessel**, while **at sea**, shall maintain a continuous listening watch:

.1 where practicable, on VHF Channel 16;

.2 where practicable, on VHF Channel 13.

17.9 Ships' Radio Licence

17.9.1 A **vessel** shall be issued with a valid **Ships**' Radio Licence by the relevant authority[52].

17.10 Ship's Radio Survey

17.10.1 Where a **vessel** is fitted with GMDSS radio equipment, the **vessel owner/operator** is recommended to undertake a survey of the radio installation every 5 years. The survey shall be undertaken by an organisation authorised by

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[49] **MGN** 665 (M+F) Registration of EPIRBs and 406 MHz PLBs used in the maritime environment.
[50] This has a global range and alerts the nearest Coastguard Station to a Man Overboard situation. It will typically take 5 minutes for the Coastguard to be aware of your position with an accuracy of 100 m.
[51] 406MHz PLBs shall be registered with the Beacon Registry, details of which are given in MSN 1816 (M+F) 406 MHz Beacons: registration requirements MGN 665 (M+F) Registration of EPIRBs and 406 MHz PLBs used in the maritime environment, **as amended**.
[52] The issue and enforcement of these licenses are the responsibility of OFCOM

the **Administration** to perform a survey of code vessel radio equipment. A Statement of Compliance may be issued by the authorised organisation upon successful completion of the radio survey.

18 Navigation Lights, Shapes and Sound Signals

The purpose of this section is to set out requirements for navigation lights, shapes and sound signalling appliances.

18.1 All **vessels** shall comply with the requirements of **the Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996 (SI 1996 No. 75)**, **as amended** and the **COLREGS**.

18.2 Where full compliance with 18.1 is impracticable and demonstrated to the satisfaction of the **Certifying Authority**, an application to the **Administration** shall be submitted by the **Certifying Authority** for consideration of equivalent safety standard(s)[53]. This shall take account of the nature of the operation of the **vessel** concerned.

18.3 As provided for in rule 33(b) of the **COLREGS**, a **vessel** of less than 12 metres in **length** shall not be obliged to carry the sound signalling appliances required by **SI 1996 No.75**, **as amended** but if not, the **vessel** shall be provided with some other means of making an **efficient** sound signal.

18.4 Table 18.4 is a summary table of common navigational lights, shapes and sound signalling appliance requirements. This Table is not exhaustive, does not cover all possible operations, and is for guidance only.

It is the responsibility of the **vessel owner/operator** to ensure that the **vessel** fully complies with **SI 1996 No. 75**, **as amended.**

[53] As provided for under Regulation 5 of The Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996, **as amended**.

Table 18.4 – Common navigation lights, shapes and sound signalling appliance requirements

Overall length	**Power driven vessels when (and sailing vessels when under power)**(Note D)	**Sailing vessels when under sail**	**At anchor**[4]	**Not under command**[7]	**Aground**	**Sound signalling appliances**
Less than 7m	All round white + sidelights[1, 2]	Sidelights[1] + stern light or Combined lantern at masthead[3] (tricolour) or White lights where the above are not practicable	Required[5,6]	Not required	Not required	Means to make an **efficient** sound signal required
7m – 12m	All round white + sidelights[1] or Masthead + sidelights[1] + stern light (if lights have to be offset from centreline) combined lantern sidelights plus either all round white or masthead and stern light	Sidelights[1] + stern light (sidelights may be combined) or Combined lantern at masthead[3] (tricolour)	Required[6]	Not required	Not required	Means to make an **efficient** sound signal required

12m – 20m	Masthead + sidelights + stern light	Sidelights + stern light (sidelights may be combined) or Combined lantern at masthead[3] (tricolour)	Required[6]	Required[6,8]	Required[6,7,8]	Whistle required
20m – 24m	Masthead +sidelights + stern light	Sidelights + stern light may show (in addition to other lights) all-round lights near the masthead, the upper red and the lower green	Required	Required	Required[8]	Whistle and bell required

1 Range of sidelight is 1 **mile**.

2 **Vessels** with a maximum speed of 7 knots shall, if practicable, show sidelights.

3 If not using a tricolour masthead lantern, a **sailing vessel** may show (in addition to other lights) two all-round lights near masthead, the upper red and the lower green.

4 By night a round white light where most visible. By day one black ball (0.6 metres in diameter) in the fore part.

5 Compliance with point 4 is only required when anchored in or near a narrow channel, fairway, anchorage or where other vessels normally navigate*.*

6 Size of the daytime shapes may be reduced commensurate with **vessel** size.

7 By night two round red lights in a vertical line two metres apart, plus a round white light (see point 3). By day three black balls (0.6 metres diameter) in a vertical line, 1.5 metres apart.

8 **Vessels** of less than 12 metres in overall **length** which are engaged in diving operations shall exhibit the lights and shapes prescribed in point 7.

Notes

a Sidelights and stern light shall have a range of 2 **miles** unless indicated otherwise.

b All round white lights, lights used at anchor and where not under command shall have a range of 2 **miles**.

d **Sailing vessels** when propelling machinery is being used, shall display the lights required for a power-driven vessel appropriate to their size, as detailed in Rule 23 and subsequently in Annex I to the **COLREGs**. Attention is drawn to the fact that the ability to utilise a combined lantern (tricolour), does not apply for a Power-Driven Vessel.

e If a **sailing vessel** is using its engine or electric motor as well as sails, then a cone, apex downwards in the fore part, should be displayed in the forepart of the **vessel**. Rules concerning shapes shall be complied with within the hours of **daylight**.

f For **open boats** vertical height shall be measured from the gunwale. For **rigid inflatable boats**, **inflatable boats** and **boats fitted with a buoyant collar** vertical height shall be measured from the top of the collar or tubes.

g **Vessels** of 7 to 12 meters shall have a masthead light range of at least 2 **miles**. **Vessels** of 12 **up to** 20 meters shall have a masthead light range of at least 3 **miles**. **Vessels** of 20 to 24 meters shall have a masthead light range of at least 5 **miles**.

h The bell required for vessels over 20m may be replaced by other equipment having the same respective sound characteristics, provided that manual sounding of the required signals shall always be possible.

19 Navigation

The purpose of this section is to set out requirements for the safe navigation of a **vessel**.

19.1 General

19.1.1 All navigational equipment shall be routinely tested and maintained in accordance with the manufacturer's instructions.

19.1.2 All **vessels** shall comply with the requirements of **the Merchant Shipping (Safety of Navigation) Regulations 2020 (SI 2020 No. 673), as amended.**

19.2 Compass

19.2.1 A **vessel** shall be fitted with a properly adjusted suitable magnetic marine compass with consistent deviation.[54]

19.2.2 Any alternative arrangements to 19.2.1 (e.g. GPS compass or Transmitting Magnetic Heading Device) may be considered on a case-by-case basis to the approval of the **Certifying Authority**. Alternative arrangements shall be of an equivalent standard to a magnetic compass, and shall at a minimum:

.1 be independent of the **vessel's** main power supply;

.2 have means of determining the **ship's** heading;

.3 have means of displaying the **ship's** heading at the **control position(s)** or **steering position**(s); and

.4 have means of correcting headings and bearings to true at all times (e.g. a valid deviation card).

19.2.3 The compass, alternative device or a repeater:

.1 shall be clearly readable at all times at the main **control position** or **steering position**; and

.2 means shall be provided for taking bearings as nearly as practicable over an arc of the horizon of 360 degrees[55].

19.2.4 Each magnetic compass shall be properly adjusted and its deviation card available at all times. Magnetic compasses shall be adjusted when:

.1 they are first installed;

.2 they become unreliable;

.3 the **vessel** undergoes structural repairs or alterations that could affect its permanent and induced magnetism;

.4 electrical or magnetic equipment close to the compass is added, removed or altered;

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54 Consistent deviation is considered to be when there has been no appreciable change observed within the two years preceding the date of inspection by the **Master**.
55 This requirement may be met by a pelorus or, in a vessel other than a steel vessel, a hand bearing compass.

.5 a period of two years has elapsed since the last adjustment and a record of actual compass deviations has not been maintained;

.6 the recorded deviations are excessive; or

.7 when the compass shows physical defects.

19.2.5 In a steel **vessel** it shall be possible to correct a magnetic compass for co-efficients B, C, D and heeling error.

19.2.6 A record of a **vessel's** compass deviations shall be maintained.

19.2.7 For **vessels** certificated to operate in **area category of operation** 0, 1, 2, 3 or 5, a compass light shall be fitted.

19.3 Nautical Publications

19.3.1 Charts[56] and nautical publications shall be kept up to date and accessible for the entire duration of the voyage.

19.3.2 **Vessels** certificated to operate in **area category of operation** 6 are not required to carry nautical publications, but shall have access to all relevant information from such nautical publications relating to the voyage.

19.3.3 Charts shall be of sufficient scale and detail to display:

.1 all relevant navigational marks;

.2 known navigational hazards; and

.3 where appropriate, information concerning **ship's** routing and **ship** reporting schemes.

19.3.4 Electronic Chart Display and Information System (ECDIS) or an electronic chart system which complies with the requirements of **MGN 319 (M+F), as amended** may be accepted as an alternative to the requirements of 19.3.1.

19.4 Signalling Lamp

19.4.1 A **vessel** shall be equipped with a waterproof electric lamp suitable for signalling.

19.5 Echo Sounder

19.5.1 All **vessels** shall be fitted with an echo sounder, or other effective means to measure the available depth of water.

19.6 Radar Reflector

19.6.1 A **vessel** shall be provided with a radar reflector of an appropriate **standard** (**MIN** 724). A radar reflector shall be fitted on the **vessel** in accordance with the manufacturer's instructions.

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56 See also MGN 293 (M+F) Alternative arrangements for paper chart requirements on MCA code vessels under 24 meters in length and fishing vessels under 24 meters in length, **as amended.**

19.6.2 **Vessels** certified to operate in **area category of operation** 6 need not comply with 19.6.1 if it can be demonstrated to the satisfaction of the **Certifying Authority** that it is not practicable. They must not put **to sea** in fog, and if visibility starts to deteriorate, they shall return to shore.

19.7 Additional Navigational Equipment Requirements for Vessels Certified to Operate in Area Category of Operation 0, 1 or 2

19.7.1 A **vessel** which is certified to operate in **area category of operation** 0, 1 or 2 shall be equipped with:

.1 an electronic positioning fixing system GPS (global navigation satellite system), or a terrestrial radio-navigation system, or other automatic means suitable for use at all times throughout the intended voyage;

.2 a distance measuring log (except where the navigational equipment in paragraph 19.7.1.1 provides reliable distance measurements in the area of operation of the **vessel**);

.3 a suitable Automatic Identification System (AIS) transceiver (see **MIN** 724 for installation and maintenance guidelines);

Vessels fitted with AIS shall ensure it is operational at all times, and the information is up to date and correct; and

.4 a 3 cm radar of an appropriate **standard** (see **MIN** 724) shall be fitted. For **vessels** which operate at speeds over 30 knots the radar shall be of appropriate specification for operation at such speeds. Where radar is equipped with automatic target tracking then a suitable transmitting heading device shall be fitted.

Additionally, **vessels** that are operated at **high speed** are recommended to be provided with an electronic chart system to satisfy chart carriage requirements as in 19.3, see also section 19.3.4 and **MGN 319 (M+F)**, **as amended**.

19.7.2 **Existing vessels** certificated to operate in **area category of operation** 0,1 or 2 transitioning from **MGN** 280, Yellow Code, Red Code or Blue Code are not required to be fitted with radar under 19.7.1.4 if radar is not currently installed.

Where an **existing vessel** operating in **area category of operation** 0,1 or 2 chooses to install radar after certifying to this **Code**, or changes to a more onerous **area category of operation** it shall meet the requirements of 19.7.1.4 in full.

19.7.3 Where an **existing vessel operating** in **area category of operation** 0,1 or 2 is fitted with radar prior to certifying under this **Code**, it shall meet the requirements of 19.7.1.4 as far as is practicable.

20 Anchors and Cables

A **vessel** shall be equipped with anchor(s) and cable(s) to grip the sea bottom and hold the **vessel** at the desired position. The purpose of this section is to set minimum requirements for mass, design and material of anchor(s) as well as the length, diameter and material of anchor cable(s).

20.1 General

20.1.1 A **vessel** operating in **area category of operation** 0, 1, 2 or 3 shall be equipped with at least two anchors (one main and one spare or two main) and comply with the minimum anchor and cable requirements given in Table 20.1.1.[57]

20.1.2 A **vessel** operating in **area category of operation** 4 or 5 shall be equipped with at least two anchors (one main and one spare or two main), the masses of which may not be less than 90% of the requirements of Table 20.1.1, with corresponding cables and subject to approval by the **Certifying Authority**[57].

20.1.3 A **vessel** operating in **area category of operation** 6 shall be equipped with an anchor of sufficient size and type. As a minimum the mass of the anchor shall correspond to that of a kedge (see Table 20.1.1).

20.1.4 Where a **vessel** uses two main anchors in unison as part of its anchoring procedure, reduced anchor sizing may be accepted if it can be demonstrated to the satisfaction of the **Certifying Authority** that an equivalent holding power is achieved.

20.1.5 Where a **vessel** anchors in accordance with 20.1.4, a spare anchor that complies with the minimum anchor and cable requirements given in Table 20.1.1 shall be carried in reserve.

20.1.6 Provision shall be made for the secure storage of an anchor and its cable.

20.2 Anchoring Systems

20.2.1 A strong securing point shall be located on the foredeck or equivalent structure, and where appropriate a fairlead or roller shall be located at the stem head.

20.2.2 Mechanical means shall be provided for handling the anchor where an anchor mass is more than 30 kilogrammes.

20.2.3 All anchors are to be rigged ready for use. At a minimum the chain and warp shall be connected to the anchor.

20.3 Anchors

20.3.1 The values for anchor masses required in Table 20.1.1 referring to **High Holding Power** anchors. The anchor design shall be approved by the **Certifying Authority**.

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[57] Anchors and cables are not designed to hold a **vessel** off of exposed coasts in rough weather nor stop a **vessel** that is moving.

20.3.2 Where a fisherman type of anchor is fitted, the mass required in Table 20.1.1 shall be increased by 75% but the diameter of the anchor cable need not be increased.

20.3.3 Materials for anchors shall be approved by the **Certifying Authority**. The material strength and form of the anchor and its attachments to the anchor cable shall be approved by the **Certifying Authority**.

Table 20.1.1– Anchors and Cables

Mean **length** of vessel (Note 4)	Anchor Mass		Anchor Cable Diameter			
	Main	Kedge	Main Chain	Main Rope	Kedge Chain	Kedge Rope
(meters)	(kg)	(kg)	(mm)	(mm)	(mm)	(mm)
6	8	4	6	12	6	10
7	9	4	8	12	6	10
8	10	5	8	12	6	10
9	11	5	8	12	6	10
10	13	6	8	12	6	10
11	15	7	8	12	6	10
12	18	9	8	14	8	12
13	21	10	10	14	8	12
14	24	12	10	14	8	12
15	27	13	10	14	8	12
16	30	15	10	14	8	12
17	34	17	10	14	8	14
18	38	19	10	16	8	14
19	42	21	12	16	10	14
20	47	23	12	16	10	14
21	52	26	12	16	10	14
22	57	28	12	19	10	16
23	62	31	12	19	10	16
24	68	34	12	19	10	16

Note 1 - Chain cable diameter given is for short link chain. Chain cable shall be sized in accordance with BS 7160, or equivalent.

Note 2 - The rope diameter given is for nylon construction. Where rope of another construction is proposed, the breaking load shall be at least equivalent to that of the nylon rope specified in the table.

Note 3 - Where anchors and cables are manufactured to imperial sizes, the anchor mass and the cable diameter shall be at least equivalent to the metric table value.

Note 4 - For the purposes of this section, mean **length** is defined as:

(**Length** + Length on waterline) / 2

Note 5 - Where rope or wire is used instead of chain, the breaking strength shall be equivalent to that of the chain specified in the Table.

20.3.4 Where a **vessel** has an unusually high windage area (as a result of a high **freeboard**, a large rig, large **deckhouses** or superstructures, or other factors)

the mass of the anchor and the anchor cable diameter shall be increased above that required in Table 20.1.1 to correspond to the increased wind loading. The increase in anchor mass and corresponding cable strength shall be approved by the **Certifying Authority**.

20.3.5 **Vessels** of non-conventional **ship** form or working under specified restricted coastal or inshore operations shall either:

.1 comply with the anchor and cable requirements of Table 20.1.1; or

.2 have anchor(s) and cable(s) of a size and material meeting an appropriate **standard** recognised by one of the **Load Line Assigning Authorities**, and to the satisfaction of the **Certifying Authority**.

20.3.6 For **vessels** intended to be engaged in any **towing**, the **vessel owner/operator** shall consider carrying an increased anchor mass and corresponding cable size above that which is required in Table 20.1.1. The increased anchor mass and cable size should be suitable for the additional mass of the towed object, in case the **vessel** is required to anchor whilst **towing**.

20.4 Cables

20.4.1 The length of anchor cable attached to an anchor shall be appropriate to the area of operation and not less than 4x the **vessel's** mean **length** or 30 meters, whichever is the longer, for each of the main and kedge anchors.

20.4.2 The strength and form of the anchor cable and its attachments to the anchor and the **vessel** shall be approved by the **Certifying Authority**.

20.4.3 The material of the anchor cable and its attachments to the anchor and the **vessel** shall be of an appropriate **standard** recognised by one of the **Load Line Assigning Authorities** to the satisfaction of the **Certifying Authority.**

20.4.4 Where the anchor cable is made of fibre rope or wire, 10 meters or 20% of the minimum required cable length, whichever is the greater, shall be made of chain connecting the rope, or wire, and the anchor.

Where the anchor cable is wire, the chain part of the cable can be substituted by an anchor and/or chain of enhanced mass, subject to the satisfaction of the **Certifying Authority**.

20.4.5 Anchor steel wire rope shall be fitted with thimbles at both ends.

20.4.6 The bitter end of the anchor cable shall be secured to the **vessel's** structure and shall be capable of being released in an emergency.

20.4.7 All **vessels** shall have a towline. The towline may be the warp for the second/spare anchor, or shall meet the specifications of the warp for the second/spare anchor.

21 Accommodation and Recreational Facilities

The purpose of sections 21, 21A and 21B is to set out the minimum requirements for accommodation and recreational facilities. For the applicable requirements refer to the headings below:

Vessels to which **MLC** does not apply – refer to 21.1 and 21A

Vessels to which **MLC** does apply – refer to 21.1 and 21B.

21.1 All vessels

All **vessels** irrespective of compliance with the **Maritime Labour Convention**, 2006 (**MLC**), **as amended** shall meet the requirements of section 21.1.

21.1.1 Heavy items of equipment shall be secured firmly to avoid movement either during normal conditions, or when the **vessel** is subjected to sudden acceleration, deceleration, or a large angle of heel or trim. For **sailing vessels**, the severe motions shall include motions leading to inversion.

21.1.2 Stowage lockers containing heavy items shall have lids or doors which can be securely fastened.

21.1.3 Ventilation shall be provided to all **accommodation spaces** below the **weather deck**:

.1 where an air conditioning system(s) is not fitted; and

.2 where 9 or more persons are berthed below the **weather deck**; or

.3 for **vessels** engaged on **long international voyages** or operating in tropical waters.

21.1.4 Where a **vessel** is fitted with a galley, food shall be:

.1 shall be stored securely and hygienically in the vicinity of the galley; and

.2 where appropriate, shall be stored in a temperature controlled food safe environment. (See **MIN** 724).

21.1.5 All hot water supply systems shall be appropriately designed, installed and maintained for the pressure and temperature at which they are intended to operate.

21.1.6 All **vessels** fitted with marine toilet(s) shall have suitable receptacle(s) for the safe disposal of non-flushable sanitary wastes.

21A Accommodation and Recreational Facilities for all vessels to which the MLC does not apply

All **vessels** to which the **MLC** does not apply shall meet the requirements of section 21A.

21A.1 General requirements for all vessels

21A.1.1 Accommodation shall provide decent living conditions and recreational facilities for all persons on board.

21A.1.2 All **accommodation spaces** shall be adequately ventilated.

21A.1.3 **Accommodation spaces** shall not be exposed to excessive vibration or noise. (See **MIN** 724).

21A.1.4 The materials used for construction of internal bulkheads, panelling and sheeting, floors and joints shall be suitable for the purpose and conducive to ensuring a healthy environment.

21A.2 All vessels at Sea for More Than 24 Hours

The following requirements shall be met where the **vessel** is **at sea** for more than 24 hours and is unable to provide the persons on board access to the equivalent shore-based facilities.

21A.2.1 An adequate supply of fresh drinking water shall be provided and easily accessible in locations throughout the **accommodation spaces**.

21A.2.2 In addition to 21A.2.1 an emergency reserve supply of drinking water shall be carried, sufficient to provide at least 2 litres per person. The installation of fresh water making machines and disinfection arrangements may be accepted as meeting this requirement on a case-by-case basis, subject to the approval of the **Certifying Authority**.

21A.2.3 A **vessel** shall be fitted with a galley which shall be equipped with means for cooking, a sink and adequate working surface for the preparation of food.

21A.2.4 Where a cooking appliance(s) is gimballed it shall be protected by a crash bar or other means to reduce the likelihood of persons being injured falling onto the cooking appliance. A means shall be provided to lock the gimbal mechanism to prevent movement.

21A.2.5 At least one marine toilet, one sanitary bin and one wash hand basin which is separated from the rest of the accommodation, shall be provided for every 12 persons on board[58].

21A.2.6 A separate bunk or cot shall be provided for each person on board and at least 50% of those provided shall be fitted with lee boards or lee cloths, where persons onboard are reliant on the facilities of the vessel.

21A.2.7 A **vessel** shall have adequate stowage facilities for the clothing and personal effects of each person on board.

[58] Due consideration shall be given to the requirements of section 29.2 Sewage

21A.2.8 An electric lighting system shall be installed which is capable of supplying adequate light to all enclosed **accommodation spaces**.

21B Accommodation and Recreational Facilities for all vessels to which the MLC applies

All **vessels** constructed on or after 7th August 2014 to which the **Maritime Labour Convention**, 2006 (**MLC**) applies shall comply with the requirements of **MLC**. It is strongly recommended that **vessels** constructed between 20th August 2013 and 6th August 2014 comply with the requirements of the **MLC**.

It is the responsibility of the **vessel owner/operator** to be familiar and compliant with the content of the **MLC**. Section 21B sets out the minimum requirements for accommodation and recreational facilities which are either:

- additional to those of the **MLC**; or
- amendments to the requirements of the **MLC** which are specific for **vessels** less than 24 m in **Load Line Length**.

A model format for a **Seafarer** Employment Agreement can be found in MGN 477 (M), **as amended**.

21B.1 Additional requirements for all vessels to which the MLC applies

All **vessels** to which the **MLC** applies shall comply with section 21B.1 (which sets out requirements additional to those of the **MLC**).

21B.1.1 An adequate supply of fresh drinking water shall be provided and made available at easily accessible locations throughout the **accommodation spaces**.

21B.1.2 In addition to 21B.1.1 an emergency reserve supply of drinking water shall be carried, sufficient to provide at least 2 litres per person. The installation of fresh water making machines and disinfection arrangements may be accepted subject to the approval of the **Certifying Authority**.

21B.1.3 Sleeping accommodation below the load line/**freeboard** mark (or the maximum loaded displacement where no load line/**freeboard** mark is provided) may only be permitted in exceptional cases[59] to the approval of the **Administration**. Such sleeping accommodation shall be fitted with an alarm to provide **seafarers** with an early warning of flooding.

21B.2 Vessels less than 200 GT to which the MLC applies

All **vessels** less than 200 GT to which the **MLC** applies shall comply with the requirements of the **MLC**. Section 21B.2 applies to all **vessels** less than 200 GT to which the **MLC** applies. Sections 21B.2.1 and 21B.2.2 detail specific amendments and additions to the requirements of the **MLC**.

21B.2.1 Amended MLC requirements for vessels less than 200 GT to which the MLC applies

21B.2.1.1 For spaces where **seafarers** are expected to stand for prolonged periods, the minimum headroom shall be 190 centimetres. The **Certifying Authority** may

[59] An exceptional case is where the size, type or intended operation of the **vessel** renders any other location of sleeping accommodation impracticable.

allow reduced height in some locations if it does not result in discomfort to **seafarers**.

21B.2.1.2 All **accommodation spaces** shall be adequately heated and insulated for the intended area of operation and anticipated weather conditions.

21B.2.1.3 Excessive noise and vibration shall be limited with **accommodation spaces**, and as far as practicable in accordance with relevant international **standards**. Where the **seafarers'** exposure to noise and vibration in **accommodation spaces** is very time limited, alternative arrangements may be accepted subject to approval of the **Certifying Authority**.

21B.2.1.4 Where a sleeping room(s) is adjacent to a **machinery space(s)**, galley(s), storeroom(s), drying room(s), or communal sanitary space(s), there shall be a bulkhead between spaces with a door that can be locked.

21B.2.1.5 In **seafarer** accommodation, wherever possible, the **maximum number of persons** per sleeping room is to be two. Any increase in the **maximum number of persons** per sleeping room shall be **approved** by the **Administration**.

21B.2.1.6 Berths for **seafarers** shall have a minimum inside dimension of either:

.1 not less than 190 centimetres in length and not less than 70 centimetres in width, with no tapering, where the **Certifying Authority** is satisfied that this is reasonable and will not result in discomfort to the **seafarer**; or

.2 not less than 198 centimetres in length and not less than 80 centimetres in width over half the length of the berth. A taper is permitted from half the length of the berth towards the foot of the berth but under no circumstances is the berth permitted to be narrower at any point than 50 centimetres.

The **Certifying Authority** may allow reduced berth dimensions in some locations if it does not result in discomfort to **seafarers**.

21B.2.1.7 For each 6 **seafarers** on board there shall be at least one set of sanitary facilities on board, such that the ratio of sanitary facilities does not exceed 6:1.

21B.2.1.8 Designated areas on open deck for recreational use may be shared with the **passengers** and **industrial personnel** on board.

21B.2.1.9 Each **seafarer** shall be provided with a minimum of 125 litres of an adequate stowage space for personal effects.

21B.2.2 Additional requirements for vessels less than 200 GT to which the MLC applies

21B.2.2.1 Recirculation of air supply may be permitted provided that mechanical exhaust ventilation is installed and that the fresh air content of the supply to the accommodation is not less than:

.1 25 cubic metres per hour for each person for whom accommodation is provided; or

.2 the total capacity of all other accommodation exhaust fans (excluding the galley) in cubic metres per hour, whichever is the greater.

21B.2.2.2 Where air conditioning is not fitted in an enclosed galley(s) a minimum mechanical supply of 20 fresh air changes per hour and a mechanical exhaust supply of 30 air changes per hour shall be provided.

21B.2.2.3 In spaces where sanitary or galley facilities are provided there shall be ventilation that draws from the accommodation and extracts to the open air.

21B.2.2.4 The galley floor shall have an anti-slip surface and provide a good foothold.

21B.2.2.5 All furniture and fittings in the galley shall be made of a material which is impervious to dirt and moisture. All metal parts of furniture and fittings shall be rust resistant.

21B.2.2.6 Where a cooking appliance(s) is gimballed it shall be protected by a crash bar or other means to prevent it being tilted when it is free to swing. A means shall be provided to lock the gimbal mechanism to prevent movement.

21B.2.2.7 It is strongly recommended that means for preventing **seafarers** from falling out of their bunk shall be provided.

21B.2.2.8 Each set of sanitary facilities shall be provided with a door that is lockable.

21B.2.2.9 Where a sanitary system is fitted with a holding tank it shall be designed to ensure that any fumes from the holding tank are not released into the sanitary space.

21B.2.2.10 There shall be weekly inspections carried out on board **vessel**, by or under the authority of the **Master**, and shall as a minimum include the following:

.1 supplies of food and drinking water;

.2 all spaces and equipment used for the storage and handling of food and drinking water; and

.3 galley and other equipment used for the preparation and service of meals.

The results of each inspection shall be recorded and available for review.

21B.3 Vessels of between 200 GT and less than 500 GT to which the MLC applies

All **vessels** of between 200 GT and less than 500 GT to which the **MLC** applies shall comply with the requirements of the **MLC**.

21B.3.1 All **vessels** of between 200 GT and less than 500 GT to which the **MLC** applies may comply with substantially equivalent arrangements for **crew** accommodation as set out in **MGN 602 (M), as amended.**

22 Protection of Personnel

The purpose of this section is to set a minimum required level of safety to ensure protection of all personnel on board. There are a number of additional regulations which set out requirements for protection of personnel. This section does not provide definitive guidance and it remains the responsibility of **the vessel owner/operator** to comply with the requirements of these regulations. (See **MIN** 724).

22.1 Health and Safety at Work

22.1.1 All **owner/operators** of **vessels** where **crew** are employed on board shall ensure compliance with the requirements of the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 (SI 1997 No.2962), **as amended**. For further guidance see **MIN** 724.

22.2 Structural Requirements and the Carriage of Equipment

22.2.1 Deckhouses

22.2.1.1 A **deckhouse's** construction shall be of an appropriate strength to withstand the sea and weather conditions likely to be encountered in the intended **area category of operation**.

22.2.2 Bulwarks, Guardrails and Handrails

22.2.2.1 There shall be sufficient hand holds and grab rails within **accommodation spaces** to allow safe movement when the **vessel** is **underway**.

22.2.2.2 Where persons are on deck of a **vessel**, a **vessel** shall meet the following requirements unless otherwise permitted by 22.2.2.6 and 22.2.2.8:

.1 be fitted with either bulwarks, three courses of guardrails or three courses of taut guard wires;

.2 the bulwark top, top course of guardrails or top course of taut guard wires shall be not less than 1000 mm above the deck;

.3 the distance between the lowest course of guardrails or taut guard wires and the deck shall not exceed 230 mm;

.4 the distance between other courses of guardrails or taut guard wires shall not exceed 380 mm; and

.5 where fitted, guardrails and guard wires shall be supported by stays or stanchions.

22.2.2.3 Where guardrails or guard wires are not fitted, or do not meet the requirements of paragraphs 22.2.2.2.1 – 22.2.2.2.4, portable or fixed jackstays secured to strong points shall be provided on each side of the **vessel**.

22.2.2.4 **Vessels** with guardrails of a height less than that required by section 22.2.2.2 may be accepted provided the areas of the **vessel** where the guardrails do not meet the required height are restricted to **crew** use only. The **Certifying Authority** shall be satisfied that any alternative arrangements for the protection of the **crew**, provide an equivalent level of safety. A notice shall be prominently

displayed that clearly indicates that **passengers** are not permitted in the restricted area.

22.2.2.5 Where a **vessel** is fitted with a **cockpit** which has an aft facing opening, the opening should be protected by a wire or other system.

22.2.2.6 Alternative arrangements to the requirements of 22.2.2.2 and 22.2.2.4 may be accepted for the following, subject to satisfaction of the **Certifying Authority:**

.1 for **vessels** certified to operate in **area category of operation** 6 only, where the fitting of guardrails, guard wires or bulwarks is impracticable or unnecessary; or

.2 for **vessels** certificated to operate in **area category of operation** 3, 4, 5 or 6 which has been built in accordance with the hull certification standards for small craft operating in **Design Category** C as provided in **MIN** 724 and as verified by an Approved or Notified Body in compliance with RCR Module B (EU type-examination) together with either Modules C, D or F, or Module G (conformity based on unit verification). A Post Construction Assessment as defined in the RCR carried out by an Approved or Notified Body may also be accepted; or

.3 where the fitting of guardrails, guard wires, or bulwarks impedes the safe operation of a **vessel** (except where a **vessel** is certificated to operate single handedly), see **MIN** 724; or

.4 where a **vessel** has a **sister vessel** which is an **existing vessel** with a valid **Small Commercial Vessel Certificate** for the same or less onerous intended **area category of operation** where the safety provisions in place are the same, this may also be accepted where documentary evidence is provided.

22.2.2.7 Additional handrails shall be fitted for:

.1 decks without bulwarks or guardrails;

.2 access stairways;

.3 ladders;

.4 passageways;

.5 side and ends of the **deckhouse**; and

.6 other locations including, but not limited to flybridges and cockpit areas, where handrails would mitigate any risk identified by an appropriate risk assessment carried out by the **vessel owner/operator** and to the satisfaction of the **Certifying Authority**. See also Section 30.

22.2.2.8 For an **open boat**, **boat with a buoyant collar**, **inflatable boat** or **rigid inflatable boat** where it is not possible to fit bulwarks, handrails or guardrails there shall be handgrips provided to ensure safety of all persons on board in the range of the sea and weather conditions likely to be encountered in the intended **area category of operation**. Toeholds may also be provided in addition to handgrips.

22.2.3 Sailing Vessels

22.2.3.1 Where the proper working of a **sailing vessel** may otherwise be impeded, bulwarks or two courses of rails or taut wires shall be fitted around the working deck, and the height of the protection shall not be less than 600 mm above the deck. Rails or wires shall be supported at intervals not exceeding 2.2 meters.

22.2.3.2 Where the proper working of a **sailing vessel** of less than 9 meters in **length** may otherwise be impaired, or for **vessels** in which the **crew** do not leave the **cockpit**, bulwarks or a single rail or taut wire may be fitted around the working deck with the height of the protection being not less than 450 mm above the deck but with no vertical opening greater than 560 mm.

22.2.3.3 A **sailing vessel** fitted with a headstay shall have a fixed or drop-nosed bow pulpit provided forward of the headstay of at least the same height as the guardrails, except in way of a substantial bowsprit. A drop-nosed pulpit with an opening wider than 250 mm shall be provided with a means of closure at a guardrail height for use **at sea**.

22.2.3.4 Where it is desired to move forward of a pulpit to access a bowsprit or to assist with docking operations, it shall be permissible to arrange the pulpit with an opening in its forwardmost part. An **efficient** means of closure of the opening shall be fitted, and jackstays provided in accordance with Section 22.2.4.5.

22.2.4 Safety Harness

22.2.4.1 Each person who may be required to work on deck shall be provided with a safety harness. A minimum of 2 safety harnesses shall be provided on board of all **decked vessels** regardless of the number of persons who may be required to work on deck.

22.2.4.2 A **sailing vessel** shall carry a safety harness for each person on board.

22.2.4.3 Fastening points for the attachment of safety harness lifelines shall be provided at the following positions:

.1 close to a companionway;

.2 on both sides of a **cockpit**;

.3 on exposed decks;

.4 perimeter of a **deckhouse**; and

.5 other locations where a fastening point(s) would mitigate the risk of falling overboard, as determined by an appropriate risk assessment carried out by the **vessel owner/operator** and to the satisfaction of the **Certifying Authority**. See also Section 30.

22.2.4.4 **Sailing vessels** operating in **area category of operation** 0, 1, 2, 3 shall be provided with jackstays.

22.2.4.5 **Sailing vessels** with an open fronted pulpit shall have jackstays carried sufficiently far forward to protect persons working in the vicinity of the pulpit.

22.2.5 Safe Location Aboard Open Boats, Boats with a Buoyant Collar, Inflatable Boats and Rigid Inflatable Boats

22.2.5.1 It is the responsibility of **owners/operators** of **open boats**, **boats with a buoyant collar**, **inflatable boats** and **rigid inflatable boats** to ensure that a safe location is provided on board the **vessel** for all persons.

22.2.6 Toe Rails

22.2.6.1 **Sailing vessels** shall, where appropriate to the working of the **vessel**, be fitted with a toe rail of 25 mm or greater in height around the working deck.

22.2.7 Anti-slip Surfaces

22.2.7.1 The surface of a working deck including any hatch coverings and, for **sailing vessels**, sloping coach roof sides where they in effect constitute a working deck when the vessel is heeled, shall be finished in; anti-slip paint, chequered plate, unpainted wood, a non-skid pattern moulded into FRP, or an **efficient** anti-slip covering.

22.2.7.2 In an **inflatable boat** or **rigid inflatable boat** the upper surface of the inflatable buoyancy tube shall be provided with a finish designed to reduce the risk of slip.

22.2.8 Personal Clothing

22.2.8.1 The **vessel owner/operator** shall provide guidance on appropriate clothing that should be worn by all persons on board their **vessel**.

22.2.8.2 Prior to departure, the **Master** shall ensure each person on board the **vessel** has the following:

.1 protective clothing appropriate to the prevailing air and sea temperature that provides protection from precipitation and spray from the sea; and

.2 footwear with slip resistant soles; and

.3 for **vessels** operating in waters of sea surface temperature[60] of 10 degrees Celsius or less, an **immersion suit** (see Section 14.5.5), a dry suit or other **efficient** garment(s) (such as, but not limited to, a floatation suit meeting EN ISO 15027-1).

22.2.9 Seating in Boats with a Buoyant Collar, Inflatable Boats and Rigid Inflatable Boats

This section provides the general requirements for seating in **boats with a buoyant collar**, **inflatable boats** and **rigid inflatable boats**. More specific seating requirements for such vessels undertaking diving operations are covered in Section 25.4 and **high speed** or planing mode operations are covered in Section 25.7.

[60] Sea temperature data may be found in sources such as the Admiralty Pilot for a given sea area and period.

22.2.9.1 On an **open boat**, **inflatable boat**, **rigid inflatable boat**, **or boat with a buoyant collar**, persons shall only be seated in designated inboard seats (this excludes the gunwale or the tubes of a **boat fitted with a buoyant collar**).

22.2.9.2 **Vessels** shall have individual, inboard, forward facing seating for all persons on board that allow them to effectively brace themselves and provide lateral support, which shall be located so that persons avoid the greatest shock loads.

22.2.9.3 All persons on board should remain seated (or stood over jockey seats, as appropriate) during operations unless moving about the **vessel** for a specific purpose.

22.2.9.4 The certificated maximum number of **passengers** shall be limited to the number of seats meeting the requirements of 22.2.9.2 and deemed suitable for **passengers**.

23 Medical Care

The purpose of this section is to set out the minimum requirements for medical stores to be carried on board a **vessel** and to define the liability of a **vessel** owner for medical care.

23.1 Medical Stores

23.1.1 The requirements for medical stores are as follows:

.1 **vessels** certified to operate in **area category of operation** 0 shall meet the requirements for Category of Medicines and Medical Stores A;

.2 **vessels** certified to operate in **area category of operation** 1 shall meet the requirements for Category of Medicines and Medical Stores B;

.3 **vessels** certified to operate in **area category of operation** 2, 3, 4, 5 and 6 shall meet the requirements for Category of Medicines and Medical Stores C.

A **vessel owner/operator** shall ensure that medical stores are carried in accordance with the latest requirements. (See **MIN** 724).

23.1.2 A **vessel owner/managing agent** is responsible for the cost of any medicine and medical equipment, including periodic replacements in order to keep stocks of any required medicines in date and immediately useable.

23.1.3 Unless a **vessel** is operating on **bare-boat charter** or is not manned by a professional **crew**, the **Master** shall manage the medical store and ensure it is kept in a good condition. Alternatively, the **Master** may designate a **competent person** to manage the medical store.[61]

23.1.4 A **vessel** shall carry an annually reviewed checklist of the medical stores kept on board. First aid instructions (St. John's, Red Cross or St. Andrews) shall be included within the medical stores.

23.1.5 Where carrying a specific item(s) is impracticable or unsafe, this may be omitted subject to satisfactory risk assessment and medical advice from a qualified medical practitioner or pharmacist. Where any item(s) is omitted, this shall be stated on the checklist required in Section 23.1.4 to the satisfaction of the **Certifying Authority**.

23.2 Medical Care on Board a Vessel

23.2.1 First aid training requirements are set out in Appendix 5 of this **Code**, Table A5.3. See also **MIN** 724.

23.3 Vessel Owner's Liability for Medical Care

23.3.1 A **vessel owner/managing agent** has liability to meet the following where applicable:

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61 It is good practice for this to be someone other than the **ship's** officer who has responsibility for the medical stores. The **Administration** does not specify who may be competent to carry out the annual inspection of the stores.

.1 Where a member of the **crew** requires prompt and adequate medical, surgical, optical or dental treatment which cannot be provided on board, the **vessel's owner/managing agent** shall as soon as reasonably practicable provide onshore access to medical care at no cost to a **crew** member. See **MIN** 724; and

.2 For **crew** members who are ill or injured during, or as a result of, employment on the **vessel**, the **owner/managing agent** shall pay for the medical care and any related expenses for accommodation or upkeep for **up to** 16 weeks, or until repatriation whichever is shorter[62].

23.3.2 Where a **passenger** requires medical care beyond the scope of first aid trained **crew**, the **vessel's master** shall as soon as reasonably practicable provide onshore access to medical care. A **master** does not have the responsibility to pay for medical care for **passengers**.

62 Within the UK, medical care is available for seafarers from ships calling at UK ports under the National Health Service (NHS). Unless seafarers are ordinarily resident in the UK or otherwise eligible for free NHS treatment under the National Health Service (Charges for Overseas Visitors) Regulations 2015 as amended, the NHS may charge for that medical care. See **MGN** 482, as amended, for further details.

24 Tenders and Daughter Craft

The purpose of this section is to define permitted use and requirements for **vessels** to operate as mother vessels, tenders and daughter craft, and ensure a level of safety for vessels which are launched and recovered from mother vessel(s).

24.1 Mother Vessels

24.1.1 A mother vessel is any vessel which leads, serves, or carries tenders or daughter craft, and may provide a **safe haven** for a daughter craft.

24.1.2 A mother vessel which carries its tender(s) or daughter craft(s) onboard shall have suitable means of launching and recovering the tender in any anticipated sea or weather conditions in the tender or daughter craft's intended area of operation.

24.1.3 Where a mother vessel launches its daughter craft and/or tender(s) using a designated **lifting device**, it shall comply with The Lifting Operations and Lifting Equipment Regulations (LOLER) **as amended** where applicable, and Provision and Use of Work Equipment Regulations (PUWER) **as amended**. See also Section 25.3.

24.1.4 Where a mother vessel is an **existing vessel** that has not previously been required to meet the requirements of 24.1.3 and where it is impracticable to do so, they shall meet the inspection, maintenance and risk assessment requirements of 24.1.5 until such time that new a **lifting device** is installed, or the existing **lifting device** is modified, at which time the **vessel** shall comply with 24.1.3.

24.1.5 Where a mother vessel is a **sailing vessel** and launches its daughter craft and/or tender(s) using the **vessel's** spars and rigging, the equipment and lifting arrangement shall regularly inspected and be maintained in a safe condition by the **vessel's owner/operator**, and shall have a risk assessment of the operation and equipment carried as per requirements of Section 3.13.

24.2 Daughter Craft

For the purpose of this **Code**, daughter craft are **vessels** which are not tenders but which may be towed or carried on board specifically in support of the mother vessel.

24.2.1 For a **vessel** to operate as a daughter craft the following requirements shall be met:

.1 be issued with a **certificate** independently of the mother vessel with the endorsement "suitable for use as a Daughter Craft" listed on the **Sport or Pleasure Certificate**;

.2 be separately named from the mother vessel;

.3 be limited to operations no more than 10 **miles** from the mother vessel when operating outside of the daughter craft's certified **area category of operation**;

.4 operate within lighting and weather conditions permitted by the daughter craft's certified **area category of operation**;

.5 shall have a risk assessment of the operation and equipment carried as per requirements of Section 3.13; and

.6 shall follow The Lifting Operations and Lifting Equipment Regulations (LOLER)[63] and Provision and Use of Work Equipment Regulations (PUWER)[64] **as amended** where applicable.

24.2.2 Tenders

For the purpose of this **Code**, tenders are vessels towed or, carried, moored, or kept ashore solely for transporting persons or stores directly to and from the mother vessel and not for sport or pleasure duties. Such transits shall be restricted to nearby shore facilities or vessels, within harbour limits or no more than 0.5 **miles** from the mother vessel whilst the mother vessel is **at sea**. A **sailing vessel** without auxiliary engines or motors should carry or tow one or more rigid or inflatable tenders.

24.2.2.1 A tender is not required to be certified under a code of practice and shall be considered as work equipment under Provision and Use of Work Equipment Regulations (PUWER) **as amended**.

24.2.2.2 For a **vessel** to operate as a tender it shall:

.1 be clearly marked "Tender to [mother vessel name]";

.2 be clearly marked with the permissible maximum weight which can be safely carried;

.3 have a minimum of one handheld VHF which shall be carried at all times;

.4 if the tender is an **open boat**, **boat with a buoyant collar**, an **inflatable boat** or **rigid inflatable boat**, shall meet the automatic shutting down of propulsion systems (kill cord) requirements as per Section 8.9.2;

.5 be fit for the intended purpose;

.6 be regularly inspected by the vessel's **owner/operator**; and

.7 be maintained in a safe condition.

24.2.2.3 A **sailing vessel** which has a draught meaning it cannot anchor within 0.5 **miles** from shore facilities may be permitted to allow its tender(s) to undertake transits up to a maximum of 1 **mile** from the mother vessel whilst the mother vessel is **at sea**.

24.3 Vessels Launched and Recovered from Mother Vessels

24.3.1 Where a tender or daughter craft is required to be launched and recovered by lifting or via a ramp, its lifting points and hull structure shall be designed and constructed to withstand the expected range of static and dynamic loads.

24.3.2 Where a tender is required to be launched or recovered by lifting, it shall be fitted with lifting points that correspond with the construction of the vessel.

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[63] **MGN** 332 (M+F) Lifting operations and lifting equipment (LOLER) regulations 2006, **as amended**.
[64] **MGN** 331 (M+F) Provision and use of work equipment (PUWER) regulations 2006, **as amended**.

Additional factors of safety and operational limitations shall be considered if personnel will be on board the tender during lifting.

24.3.3 Where a daughter craft is required to be launched or recovered by lifting, proof load tests and inspections shall be carried out to verify that:

.1 the lifting structures of the daughter craft, and

.2 the safe operation of the **lifting device**, its foundation and supporting structures,

are to the satisfaction of the **competent person** in accordance with LOLER Regulations. Tests shall be conducted in accordance with the manufacturer's recommendations for the installation. Such tests shall be repeated after any **modifications** (including any structural **modifications**).

24.3.4 Where a daughter craft is an **existing vessel** that has not previously been required to meet the requirements of 24.3.3 and where it is impracticable to do so, they shall meet the inspection, maintenance and risk assessment requirements of 24.1.5 until such time the daughter craft is modified, at which time the **vessel** shall comply with 24.3.3.

25 Carriage of Activity Related Equipment, Lifting, Towing and High-Speed Operations

The purpose of this section is to set out the minimum additional requirements for **vessels** which intend to undertake any of the following operations:

- Carriage of **activity related equipment**;
- Lifting;
- Towing;
- **High speed** or planing mode.

25.1 General

25.1.1 A risk assessment shall be undertaken by the **vessel owner/operator** taking into account the specific risk associated with, as appropriate:

.1 carriage of **activity related equipment**;

.2 lifting (including diving lifts);

.3 **towing**;

.4 **high speed** or planing mode operations.

This shall be presented to the **Certifying Authority** as part of the examinations prior to issuing or renewing of the **Certificate**.

25.2 Carriage of Activity Related Equipment

25.2.1 All **activity related equipment** shall be stowed and secured in a manner which will not adversely affect the safe operation of the **vessel**.

25.2.2 A **vessel** shall have adequate **activity related equipment** support and securing arrangements appropriate for all intended modes of operation.

25.2.3 Stowed **activity related equipment** shall not obstruct accessways or walkways, drainage of water from the deck or restrict visibility from the main **control position** or **steering position**.

25.3 Vessels Engaged in Lifting Operations

25.3.1 Vessels Fitted with Lifting Devices

25.3.1.1 A **vessel** intending to operate lifting equipment (see section 12.1.1.3) shall comply with the following safety requirements:[65]

.1 The Merchant Shipping (Lifting Operations and Lifting Equipment) Regulations 2006 (SI 2006 No. 2184), **as amended**; and

.2 The Merchant Shipping (Provision and Use of Work Equipment) Regulations 2006 (SI 2006 No. 2183), **as amended**.

[65] Additional information on maintenance and lifting operations is available in **Code of safe working practices for merchant seafarers (COSWP), as amended.**

A **vessel** fitted with a crane intending to carry out lifting operations shall also comply with the following safety requirements:

.3 MGN 332, **as amended**; and

.4 BS 7121-2-4:2013 Code of Practice for the Safe Use of Cranes.

25.3.1.2 Lifting operations shall be undertaken only where the manufacturer's operating manual and instructions on safety procedures to be followed have been provided by the **vessel owner/operator** to the **Master** and **crew**, and the **Certifying Authority** is satisfied that any lifting operations do not endanger the **vessel** or any persons on board.

Safety procedures shall be included in the safety manual and shall form part of the safety briefing for a **bare-boat charter**.

25.3.1.3 Means shall be provided for the **efficient** securing of **activity related equipment** and any loose equipment on board during lifting operations.

25.3.1.4 A non-**decked vessel** shall not be fitted with a **lifting device(s)**. Upon submission from the **vessel owner/operator** via the **Certifying Authority**, the **Administration** may approve exceptions to this requirement where the **Administration** is satisfied that the vessel meets the requirements of Section 5.1.10.

25.4 Vessels Engaged in Diving Operations

This section provides the general requirements for the safety of a **vessel** engaged in diving operations and its occupants, but the commercial activities off the **vessel** e.g. commercial diving, are not considered under the **Code**.

25.4.1 General

25.4.1.1 The **vessel owner/operator** shall ensure any **vessel** undertaking diving operations has a sufficient number of **crew** on board to maintain a clear view for the safe navigation of the **vessel** at all times. If necessary, additional **crew** shall be carried on board to fulfil this requirement.

25.4.1.2 The field of vision from the main **control position** or **steering position** required by section 10.1.3 shall not be obscured by seating or persons occupying seating positions around the vessel.

25.4.1.3 Personal buoyancy equipment (lifejackets or buoyancy aids) shall be worn by **passengers** at all times during the transit to or from a dive location except briefly while changing or adjusting clothing or personal equipment.

25.4.1.4 The **Code** sets out safety provisions for the **vessel** and the persons on board, but not for activities, such as diving, which may be conducted from the **vessel**. The **vessel owners/operator** shall ensure compliance with all other regulatory or sport specific requirements covering the offboard activities.

25.4.2 Vessels Fitted with Diver Lifts

25.4.2.1 **Vessels** fitted with a diver lift shall comply with the requirements of 25.3.1.1 in addition to the requirements laid in this section.

25.4.2.2 When conducting a heel test, a **vessel** shall be tested in the **fully loaded condition** with the lift system deployed in the air, with the maximum intended number of fully equipped divers and shall comply with stability requirements of section 12B.4 of this **Code**.

25.4.2.3 A Safe Working Load (SWL) shall be assigned based on the specific diving operations and calculated using a minimum weight of 150 kg per diver. The overload test shall be carried out at 2 x SWL.

25.4.2.4 Where a **vessel** is fitted with a lift system on a transom, it shall not cause a reduction in **freeboard** at the aft end of more than 50% of the minimum permitted **freeboard** when deployed in air with the maximum intended number of fully equipped divers.

25.4.2.5 Precautions shall be taken to ensure safe means of access from the water and that the diver and/or equipment is protected from damage/injury or endangerment[66], and that the lift is controlled when in motion.

25.4.2.6 All practicable precautions shall be taken during diving operations to minimise the risk of persons in the water receiving injury from rotating equipment. (See **MIN** 724).

25.4.2.7 Where a diver lift is installed or modified, the **Certifying Authority** shall assess the following against the applicable requirements of Section 5 and the appropriate **standards** listed in **MIN** 724:

.1 the strength of the **vessel's** construction;

.2 the stability of the **vessel**;

.3 the integrity of the bulwarks.

25.4.3 Seating Arrangements

25.4.3.1 The **vessel owner/operator** shall ensure that a **vessel** has seating provided for all persons on board. This may be on the gunwale or the tubes of a **rigid inflatable boat, inflatable boat** or **boat fitted with a buoyant collar** where provided with appropriately positioned hand holds and foot placements that allow those persons to effectively brace themselves.

25.4.3.2 Where such seating is on the gunwale or the tubes of a **rigid inflatable boat, inflatable boat** or **boat fitted with a buoyant collar**, the **vessel owner/operator** shall put in place appropriate mitigations for all risks identified by an appropriate risk assessment carried out by the **vessel owner/operator** and to the satisfaction of the **Certifying Authority**. See also Section 30.

25.4.3.3 All persons on board should remain seated (or stood over jockey seats, as appropriate) during the transit to or from a dive location unless moving about the **vessel** for a specific purpose.

[66] The risk of injury or endangerment is greater where means of access to and from the water is from the stern.

25.4.4 Risk Assessment of Diving Operations

25.4.4.1 The **owner/operator** of a **vessel** engaged in **diving** operations shall have and implement a risk assessment which shall include, at a minimum, mitigating actions for the following:

.1 weather, sea state and environmental conditions likely to be encountered during the transit to and from the dive location;

.2 the number of **passengers** seated on the gunwale or the tubes of a **rigid inflatable boat**, **inflatable boat** or **boat fitted with a buoyant collar**;

.3 Assessment of the **passengers'** physical capability to cope with the loads and forces experienced by **high speed** or planing operations;

.4 Assessment of the **passengers'** ability to effectively brace themselves in the seating provided on board the **vessel**;

.5 Physical assessment of the suitability and fitment of any lifejackets worn by **passengers**;

.6 The availability, suitability and effectiveness of handholds and foot placements provided on board the **vessel**; and

.7 the means of **passengers** safely entering and being recovered from the water to/from the **vessel**.

25.4.4.2 Where area(s) of risk not covered by Section 25.4.4.1 are identified, mitigating action(s) shall be implemented as part of the risk assessment.

25.5 Vessels Engaged in Towing Operations

Towing operations are limited under this **Code** to **towing** of **activity related equipment**, tenders and/or daughter craft and other vessels or floating objects, for the purposes of sport or pleasure. **Vessels** which are intended to undertake **towing** operations shall have their suitability noted on the certificate.

Vessels engaged in other commercial towing operations are subject to requirements in codes which are more appropriate to their use and shall not be certificated under this **Code.**

25.5.1 General

25.5.1.1 The definition of **towing** includes three specific **towing** methods as outlined below:

.1 by a towline about which the **towing vessel** is free to manoeuvre such that there is a risk of girting, where if the towline is attached towards amidships, it could adopt an angle to the **towing vessel** and provide a capsizing moment;

.2 side by side with the **towing vessel** firmly attached alongside the towed **vessel** or floating object, so as to be able to manoeuvre as if one **vessel**;

.3 fore and aft with the bow of the **towing vessel** firmly attached to the stern of the towed vessel or floating object, so as to be able to push, pull or manoeuvre as if one vessel.

25.5.1.2 A **vessel** engaged in **towing** shall be of a design to ensure a safe and effective **towing** operation.

25.5.1.3 The requirements of this section do not apply to **vessels towing** in an emergency situation (force majeure).

25.5.1.4 A **vessel's towing** equipment shall be of adequate strength and of a design suitable for the intended purpose, to the satisfaction of the **Certifying Authority**.

25.5.1.5 A **vessel owner/operator** shall have a documented procedure for inspection and maintenance of **towing** equipment.

25.5.1.6 Where a **vessel** is intended to be engaged in **towing** the safety of the **towing** operation and the condition of the **towing** equipment shall be assessed prior to departure.

25.6. Risk Assessment of Towing Operations

25.6.1 The **owner/operator** of a **vessel** engaged in **towing** operations shall have and implement a risk assessment which shall include, at a minimum, mitigating actions for the following:

.1 weather, sea state and environmental conditions likely to be encountered during the tow;

.2 any restrictions applicable to the towed object(s) that may limit the safe speed, including but not limited to the number of towed vessels or floating objects;

.3 limitations of **towing** equipment in use at the time of the tow;

.4 appropriate towline length. This shall additionally consider the distances between the **towing vessel** and the closest towed vessel or floating object, the distances between additional towed vessels or floating objects, and the overall length of the tow;

.5 effectiveness of communications between vessel undertaking **towing** and a towed vessel or floating object;

.6 effectiveness of the **towing vessel's** observation of the towed vessel(s) or floating object(s), if necessary additional **crew** shall be carried on board to fulfil this requirement;

7 the means of safe access to a vessel undertaking **towing**, a towed vessel or floating object.

25.6.2 Where area(s) of risk not carried by Section 25.6.1 are identified, mitigating action(s) shall be implemented as part of the risk assessment.

25.7 Vessels Engaged in High-Speed or Planing Mode Operations

Vessels which are intended to carry **passengers** at **high-speed** or in a planing mode shall have this noted on the **certificate** and this shall include details of the minimum number of **crew** required to operate the **vessel**.

25.7.1 A **vessel** intending to operate at **high-speed** or in a planing mode shall meet the requirements of the Merchant Shipping and Fishing Vessels (Control of Vibration at Work) Regulations 2007 and, where appropriate, follow the guidance issued in **MGN** 436 (M+F) **as amended**[67].

25.7.2 The **owner/operator** of a **vessel** engaged in the carriage of **passengers** at **high speed** or in a planing mode shall have and implement a risk assessment which shall include mitigating actions for at least the following:

.1 Assessment of appropriate operational speeds in all likely sea-state, weather, and light conditions likely to be encountered for duration of the voyage;

.2 The **passengers'** physical capability to cope with the loads and forces experienced by **high speed** or planing operations;

.3 The **passengers'** ability to effectively brace themselves in the seating provided on board the **vessel**;

.4 The suitability and fitment of lifejackets as worn by **passengers**;

.5 The availability, suitability and effectiveness of handholds and foot placements provided on board the **vessel**;

.6 All appropriate mitigations for the risks associated with seating **passengers** in the forward 1/3rd of the **vessel's length**.

The **vessel owner/managing agent** shall detail this in the Safety Management System for the **vessel**, company and **owner/managing agent's** operations (see Section 30).

25.7.3 The owner/operator of an **open boat**, **rigid inflatable boat**, **inflatable boat**, **boat fitted with a buoyant collar**, or any such **vessel** designed to provide or operate with the intent to provide **passengers** with the experience of **high speed** or planing mode operations, shall ensure that the **vessel** has individual, inboard, forward facing seating providing lateral support for all **passengers** on board with appropriately positioned hand holds and foot placements that allow those persons to effectively brace themselves.

25.7.4 It is strongly recommended that the individual, inboard, forward facing seating required by 25.7.3 (this excludes the gunwale or the tubes of a **rigid inflatable boat, inflatable boat** or **boat fitted with a buoyant collar**) shall not be located in the forward 1/3rd of the **vessel's length**, so that persons occupying these seats avoid the greatest shock loads.

25.7.5 Where the individual, inboard, forward facing seating required by 25.7.3 is located in the forward 1/3rd of the **vessel's length**, the **vessel owner/operator** shall put in place appropriate mitigations for all risks identified by an appropriate

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[67] The **Administration** has published the Code of Practice for Controlling Risks due to Whole body Vibration on Ships (ISBN No. 9780115530760) which is the official guide to complying with the Merchant Shipping and Fishing Vessels (Control of Vibration at Work) Regulations 2007.

risk assessment carried out by the **vessel owner/operator** to the satisfaction of the **Certifying Authority**. See also Section 30.

25.7.6 All **passengers** on board should remain seated (or stood over jockey seats, as appropriate) during **high speed** or planing operations unless moving about the **vessel** for a specific purpose.[68]

25.7.7 The **vessel owner/operator** shall ensure any **vessel** undertaking **high speed** or planing operations has a sufficient number of **crew** on board to maintain a clear view for the safe navigation of the **vessel** at all times. If necessary, additional **crew** shall be carried on board to fulfil this requirement.

25.7.8 The **vessel owner/operator** shall ensure that the **Master** is appropriately qualified and/or experienced to operate a vessel at **high speed**, and that the **Master** has the awareness and ability to implement the risk mitigation procedures of the company against the increased risks to persons and the **vessel** when operating at **high speed**.

[68] Further guidance can be found in the publication "**Passenger** Safety on Small Commercial **High Speed** Craft & Experience Rides, issue 3 - 2019."

26 Additional Requirements for Sailing Vessels

The purpose of this section is to set out the minimum additional requirements for **sailing vessels**.

26.1 Sailing Vessels

All **sailing vessels** shall meet the requirements of this section in addition to the requirements of all other relevant sections of the **Code**.

26.1.1 Storm Sails

26.1.1.1 **Vessels** operating in **area category of operation** 0 shall carry:

.1 a storm trysail; and

.2 a storm jib.

26.1.1.2 **Vessels** operating in **area category of operation** 1, 2 or 3 shall carry:

.1 a storm trysail, or mainsail reefing to reduce the luff length by at least 50%; and,

.2 a storm jib.

26.1.1.3 **Vessels** operating in **area category of operation** 4, 5 or 6 are not required to carry storm sails.

26.1.1.4 Storm jibs shall have a maximum luff length of 65% of the foretriangle height and an area not greater than 5% (foretriangle height)^2, and shall be capable of being set:

.1 on a fixed dedicated independent separate stay and shall not use any luff groove device; or

.2 over the taught luff of a furled sail; or

.3 on a stay built into the luff of the storm jib.

26.1.1.5 Storm trysails shall have an area not greater than 17.5% (mainsail hoist (P) x mainsail foot length (E)). The storm trysail area shall be calculated as 0.5 x leech length x shortest distance between tack point and the leech.

26.1.2 Rig Inspections

26.1.2.1 A **competent person** shall periodically carry out a detailed visual inspection of spars and standing rigging which shall, at a minimum, be carried out once during the term of the **Certificate**; and a report shall be submitted by the **competent person** to the satisfaction of the **Certifying Authority**. The **Certifying Authority** may require more frequent examinations dependent on the nature and use of the **vessel**.

26.1.2.2 Chain plates and their attachments to hull structure shall, at a minimum, be visually examined[69] by a **competent person** at least once during the term of the **Certificate**. The **Certifying Authority** may require more frequent or in-depth examinations dependent on the nature and use of the chain plates and attachments.

26.1.3 Keel and Rudder Inspections

A **competent person** shall carry out detailed visual inspections as set out in 26.1.3.1 – 26.1.3.3 which shall, at a minimum, be carried out once during the term of the **Certificate**; and a report detailing the results of these inspections shall be submitted by the **competent person** to the satisfaction of the **Certifying Authority.** (See **MIN** 724).

The **Certifying Authority** may require more frequent examinations dependent on the nature and use of the **vessel**.

26.1.3.1 The keel and the method of attachment to the hull shall be inspected:

.1 internally (shall be conducted with the **vessel** either in or out of the water); and

.2 externally (shall be conducted with the **vessel** out of the water).

26.1.3.2 For **sailing vessels** with lifting, swing or canting keels, additional inspections shall, at a minimum, include the following:

.1 there are no significant stress cracks in the structure around pins supporting the keel; or

.2 there are no significant stress cracks in the structural arrangement for lifting the keel; and

.3 no extensive corrosion on pins, cylinders and supporting structure.

26.1.3.3 The rudder and the method of attachment to the hull, and the associated steering system shall be inspected with the **vessel** out of the water and, at a minimum, include the following:

.1 check bearing area for any damage/stress cracks;

.2 check rudder shaft and blade integrity, especially at any shaft joins and at upper connections to hull/deck;

.3 undertake a tip deflection test to identify any excessive movement; and

.4 if applicable, check rudder pintles and gudgeons for corrosion or cracking and their attachment to the hull.

26.1.3.4 **Sailing vessels** participating in racing events may require more frequent examinations of the keel and rudder as required by 27A.1.1.2.

[69] Where non-destructive testing is to be used then, correct calibration of equipment against representative test blocks to the satisfaction of the **Certifying Authority** should be carried out before testing.

26.2 Additional Navigational Equipment Requirements for Sailing Vessels

26.2.1 A **sailing vessel** required by 12.1.1.3 to be provided with a Stability Information Booklet shall carry an inclinometer.

26.2.2 A monohull **sailing vessel** operating in **area category of operation** 0, 1, 2 and 3 shall be provided with an anemometer which provides a continued indication of apparent windspeed, with the display clearly visible at the **steering position(s)**.

26.2.3 A multihull **sailing vessel** shall be provided with an anemometer which provides a continued indication of apparent windspeed, with the display clearly visible at the **steering position(s)**.

26.2.4 A **sailing vessel** shall carry wire cutting equipment, or equivalent means to clear rigging, for use in the event of dismasting.

27 Alternative Requirements for Sailing Vessels Engaged in Racing Events, Race Support Boats and Vessels Operating as Beachcraft in Commercial Use

The purpose of this section is to set out the minimum alternative requirements that are considered acceptable for **sailing vessels** engaged in racing events, **race support boats** and vessels operating as beachcraft in **commercial use**:

- **Sailing Vessels** engaged in **Racing Events** – refer to 27.1 and 27A
- **Race Support Boats** – refer to 27.1 and 27B
- **Vessels** Operating as Beachcraft in **commercial use** – refer to 27C

In this section:

"beachcraft" means a vessel that:

(a) may be hired on a short term basis for use by one or more persons for a leisure purpose; and

(b) is fitted or supplied with safety equipment in respect of which no training, qualification or other formal certification is required by the hirer to operate that vessel;

In this definition, "short term basis" means an hourly, half daily or daily basis and "safety equipment" includes but is not limited to life jackets or buoyancy aids, and kill cords;

"coded vessel" means a **vessel** which is in possession of a valid **certificate**;

"Member National Authority" ("MNA") means an organisation, whether incorporated or unincorporated, controlling the sport of yachting or sailing in any country or in any political entity granted status as an Olympic nation which has been granted full membership of World Sailing;

"non-coded vessel" means, in this section, a vessel that is not a **coded vessel**, but which has been chartered or is being used commercially for **racing events** or **race support activities** only;

"Organising Authority" means the body responsible for organising a **Racing Event**, in compliance with the rules and regulations recognised by the relevant **National Governing Body**;

"Race Committee" means the Committee delegated with all the powers required to conduct the racing, and is responsible for the management and safety of the **race support activities** in order to meet the race management requirements of the **member national authority**;

"Racing Event" means a race or a series of races organised by an **Organising Authority**;

"Race Support Activities" means:

(a) laying, adjusting and collecting of racing course and boundary markers **at sea**;

(b) monitoring the safety of a race **at sea**;

(c) assisting race participants in difficulties **at sea**;

(d) providing support to competitors while afloat **at sea** (including coaching),

(e) adjudicating a race **at sea**;

(f) marshalling the race participants and spectators **at sea**;

(g) tidal and meteorological forecasting for a race **at sea**; or

(h) any similar activity which is in direct support of the sporting participants taking part in a race **at sea**;

and the scope and direction for all such activities will be determined by the **race committee** and those activities will be undertaken only for racing organised by an **Organising Authority** affiliated to the **member national authority**;

"Race Support Boat (RSB)" means a vessel used for **race support activities** in a race affiliated to the **member national authority**;

"Training Voyage" means a voyage:

(a) undertaken solely for the purpose of familiarising a vessel's **crew** in preparation for a **racing event** or for carrying out a **race support activity**; and

(b) limited to an area which is not more than 10 **miles** in radius from either the point of departure **to sea** or the seaward boundary of **categorised waters**.

"Delivery Voyage" means a voyage undertaken for the purpose of relocating a vessel to or from a **racing event** where the safety provisions provided by the **racing event organising authority** are not in place for the duration of the voyage.

27.1 Vessels on a voyage to or from a Racing Event, or on a Training Voyage

27.1.1 **Vessels** on a voyage to or from a **racing event** where the safety provisions provided by the **racing event organising authority** are in place for the duration of the voyage shall comply with:

.1 the requirements set out for that **racing event**; or,

.2 the provisions of the **Code** for the **area category of operation** applicable for the intended voyage.

27.1.2 **Vessels** on a **delivery voyage** shall comply with the provisions of the **Code** for the most onerous **area category of operation** applicable for the intended voyage.

27.1.3 **Sailing vessels** on a **training voyage** or **vessels** on a **race support activity training voyage** where the safety provisions provided by the **racing event organising authority** are in place for the duration of the voyage shall comply with:

.1 the requirements set out for that **racing event**; or

.2 the provisions of the **Code** for the **area category of operation** applicable for the intended voyage.

27.1.4 **Sailing vessels** on a **race event training voyage** or **vessels** on a **race support activity training voyage** where the safety provisions provided by the **racing event organising authority** are not in place for the duration of the voyage shall comply with the provisions of the **Code** for the **area category of operation** applicable for the intended voyage.

27A Sailing Vessels Engaged in Racing Activities

A **sailing vessel** competing in a **racing event** shall be certificated either in accordance with the requirements of this section, where detailed, or with the applicable provisions of the **Code**.

27A.1.1 A **coded vessel** that is competing in a **racing event** shall:

.1 hold a valid **certificate** in respect of the **area category of operation** expected during the **racing event**, including any voyage to or from a **racing event,** or

.2 be deemed to comply with the **Code**, irrespective of whether the vessel satisfies all of the requirements of the **Code**, provided that the **vessel** complies with:

(a) the racing rule provisions of the **MNA** of the country where the **racing event** takes place;

(b) the safety rule provisions of the **racing event Organising Authority**; and;

(c) the appropriate parts of the World Sailing Offshore Special Regulations (WS OSR) or the equivalent requirements of the **Organising Authority**. See 27A.2.

27A.1.2 A **non-coded vessel** will be considered to be a **coded vessel** for the purposes of competing in a **racing event**, irrespective of whether the vessel satisfies all the requirements of the **Code,** provided that:

.1 the vessel complies with the provisions of 27A.1.1.2(a) to 27A.1.1.2(c) and either 27A.2.2 or 27A.2.3, as applicable to the **area category of operation** for the intended **racing event,** to the satisfaction of the **National Governing Body**; and

.2 the vessel is issued with a certificate by the **National Governing Body** as a **vessel in commercial use** only for the purpose of racing. The certificate shall list the **racing event** title(s) the vessel is intending to participate in; and

.3 the vessel may also be examined against the requirements of the **Organising Authority** safety and racing rule requirements as detailed in 27A.1.1.2(a) to 27A.1.1.2(c) to the satisfaction of the **Organising Authority**.

27A.1.3 The **National Governing Body** may only issue a certificate to such a vessel for World, Continental, National, Open or other similar status **racing events** complying with 27A.1.5 and shall advise the **Administration** accordingly.

27A.1.4 The relief from compliance with the provisions of the **Code**, which is permitted by 27A.1.1.2 and 27A.1.2 only apply to a vessel whilst competing in a **racing event,** or on a voyage to or from a **racing event** as detailed in section 27.1.1, or on a **training voyage** as detailed in section 27.1.

27A.1.5 The relief from compliance with the provisions of the **Code**, which is permitted by 27A.1.1.2 and 27A.1.2, does not apply to a **sailing vessel** on a **delivery**

voyage as detailed in section 27.1.2 or when taking part in a racing event created and organised with the intent to avoid the provisions of the **Code**.[70]

27A.2 Alternative Arrangements

The alternative arrangements to the standards applied by the **Code** set out in this section may be accepted on the basis that they provide appropriate standards of safety by considering at a minimum, the vessel's type of operation, equipment carriage requirements and any other limitations required in order to provide an equivalent level of safety.

27A.2.1 Where a specific WS OSR Category or any equivalent requirements are not specified by the **racing event Organising Authority**, the vessel shall either:

.1 comply with the provisions of the **Code**, for the **area category of operation** applicable for the intended **racing event**; or

.2 comply with the provisions of the WS OSR for the equivalent **area category of operation** of the **racing event**, as detailed in Table 27A.2.1.

Table 27A.2.1 MCA Area Category of Operation and World Sailing Offshore Special Regulations Categories

MCA Area Category of Operation	World Sailing Offshore Special Regulations Category
0	Category 0
1, 2	Category 1
3	Category 2
4	Category 3
5	Category 4
6	Special Regulations for Inshore Racing (OSR Appendix B)

27A.2.2 Vessels operating under 27A.1.1.2(c) in area category of operation 0, 1, 2 or 3

27A.2.2.1 Vessels operating under the provisions of the WS OSR as set out in 27A.1.1.2(c) shall also comply with the following:

.1 the vessel is subject to an out of the water **intermediate examination** by an **authorised person** not more than two years before the **racing event** or following any grounding;

.2 the examination in section 27A.2.2.1.1 finds that there are no visible stress cracks including (but not limited to) to the keel, hull/keel attachment, hull appendages and other stress points, inside the hull,

[70] All legitimate races are required by World Sailing to have been "pre-advertised" by means of a Notice of Race and be controlled by Sailing Instructions. The minimum provisions for these are set out in the World Sailing racing rules.

backing plates, bolting arrangements and keel floors.–(See WS OSR Appendix L - Model Keel and Rudder Inspection Procedure, **as amended**); and

.3 The vessel fulfils the safety management responsibilities set out in Section 30 relating to vessel structural inspection and planned maintenance by competent personnel, particularly prior to long ocean passages, passage planning and execution, including weather routing, the provision of appropriate lifesaving equipment, including liferafts, **EPIRBs** and PLBs, and the extent to which they should be float-free and/or readily available, and the provision of onboard procedures, including the action to be taken on discovering water ingress, as appropriate for the intended **area category of operation.**

27A.2.3 Vessels Operating under 27A.1.1.2(c) in Area Category of Operation 4, 5 or 6

27A.2.3.1 Vessels operating under the provisions of the WS OSR as set out in 27A.1.1.2(c) shall also comply with the following:

.1 An out of the water **intermediate examination** shall be undertaken by the **owner/operator** within two years prior to the **racing event** or following any grounding;

.2 The out of the water **intermediate examination** shall inspect the integrity of the keel and rudder following the procedure–set out in WS OSR Appendix L - Model Keel and Rudder Inspection Procedure; and

.3 Meet the safety management responsibilities set out in Section 30 with regards vessel structural inspection and planned maintenance by competent personnel, particularly prior to long ocean passages, passage planning and execution, including weather routing, the provision of appropriate lifesaving equipment, including liferafts, **EPIRBs** and PLBs, and the extent to which they should be float-free and/or readily available, and the provision of onboard procedures, including the action to be taken on discovering water ingress, as appropriate for the intended **area category of operation.**

27A.2.4 Vessels to which the MLC Applies

27A.2.4.1 All **vessels** to which the **MLC** applies which are competing in a **racing event** shall comply with applicable requirements of section 21B.1.

27A.2.4.2 **Vessels** unable to meet the requirements of section 21B.1 may apply to the **MCA** for acceptance of equivalent provisions in accordance with the procedures set out in MGN 472, **as amended**.

27B Race Support Boats

A **vessel** operating as a **race support boat** shall be certificated in accordance with the requirements of this section, where detailed, or with the applicable provisions of the **Code**.

27B.1.1 A **coded vessel** operating as a **race support boat** shall:

.1 hold a valid **certificate** for the **area category of operation** expected during the **racing event**, including any voyage to or from a **racing event,** or

.2 be deemed to comply with the **Code**, irrespective of whether the vessel satisfies all of the requirements of the **Code**, provided that the **vessel** complies with the alternate provisions set out in sections 27B.2.1 – 27B.2.16.

27B.1.2 A **non-coded vessel** will be considered to be a **coded vessel** whilst operating as a **race support boat**, irrespective of whether the vessel satisfies all the requirements of the **Code,** provided that:

.1 the vessel complies with the provisions of 27B.2.1 – 27B.2.16 to the satisfaction of the **Organising Authority**; and

.2 the vessel is issued with a certificate by the **National Governing Body** as a **vessel in commercial use** only for the purpose of **race support activities**. The certificate shall list the **racing event** title(s) the vessel is intending to participate in.

27B.1.3 The **National Governing Body** shall only issue a certificate to such a vessel for World, Continental, National, Open, Club or other similar status **racing events** complying with 27B.1.5 and shall advise the **Administration** accordingly.

27B.1.4 Sections 27B.1.2 and 27B.1.3 only apply to a vessel whilst operating as a **race support boat** or on a voyage to or from a **racing event**, or on a **training voyage** as detailed in section 27.1.

Delivery voyages to transit the vessel to or from a **racing event** and **race support activity training voyages** are not covered by either 27B.1.2 or 27B.1.3. See 27.1.

27B.1.5 The relief from compliance with the provisions of the **Code**, which is permitted by 27B.1.1.2 and 27B.1.2, does not apply to a vessel providing **race support activities** to a racing event created and organised with the intent to avoid the provisions of the **Code**[71].

27B.1.6 All **race support boat(s)** shall comply with the requirements of Section 30.

[71] All legitimate races are required by World Sailing to have been “pre-advertised” by means of a Notice of Race and be controlled by Sailing Instructions. The minimum provisions for these are set out in the World Sailing Racing Rules of Sailing.

27B.2 Alternative Arrangements

The alternative arrangements to the standards applied by the **Code** which are set out in this section may be accepted on the basis that they provide appropriate standards of safety by considering the vessel's type of operation, equipment carriage requirements and any other mitigating factors required in order to provide an equivalent level of safety.

27B.2.1 General

27B.2.1.1 Compliance with the **standards** for a vessel that has been designed and constructed under the Recreational Craft Regulations 2017, as evidenced by the 'CE plate', or equivalent, affixed to the vessel, may be accepted by the **Organising Authority** as demonstrating compliance with the alternative arrangements for construction, water-freeing arrangements, stability and freeboard required by this section. The **Organising Authority** shall be satisfied that the **Design Category** of the vessel is suitable for the likely conditions in which the vessel may be expected to operate as a **Race Support Boat**.

27B.2.1.2 Vessels complying with 27B.2.1.1 shall meet the requirements set out in 27B.2.10 - 27B.2.16.

27B.2.1.3 Vessels that do not meet the requirements of 27B.2.1.1 shall meet the requirements set out in 27B.2.2 - 27B.2.16.

27B.2.2 Construction Standards

27B.2.2.1 The design and construction of the hull structure shall provide strength for the safe operation of the vessel, at its service draught and maximum service speed, to withstand the sea and weather conditions likely to be encountered in the intended **area category of operation**. See also Section 5.3.

27B.2.2.2 Alternatively vessels which are of a design and construction which would meet the requirements of ISO 12215 Parts 5 and 6 or 6185 Part 2, or 3 or 4 would be acceptable.

27B.2.2.3 **Inflatable boats** or **rigid inflatable boats** meeting the requirements of ISO 6185 Part 1 may not be suitable for operation as **Race Support Boats**. The **Organising Authority** shall be satisfied that the vessel is suitable for the likely conditions in which the vessel may be expected to operate.

27B.2.3 Water Freeing Arrangements

27B.2.3.1 Vessels which are of a design and construction which would meet the water freeing requirements of ISO 6185 Part 2 or 3 would be acceptable.

27B.2.4 Machinery, Propulsion and Fuel Systems

27B.2.4.1 Marine outboard engines must comply with recognised safety standards for their fitting and operation. (See **MIN** 724).

27B.2.4.2 All **open boats, inflatable boats**, **rigid inflatable boats** and **boats with a buoyant collar** shall be fitted with a machinery kill cord which the **Master** should ensure is always worn by the helmsperson when the vessel is making way.

27B.2.4.3 A **motor vessel** fitted with a petrol, **diesel**, hybrid or **lithium-ion battery** or **lead-acid battery** powered outboard engine shall be suitable for marine use

and have sufficient fuel capacity or charge for its intended voyage or excursion. In vessels powered by petrol engines, spare petrol must not be carried onboard unless it is judged to be essential to assure the safe completion of the voyage or excursion.

27B.2.4.4 If spare petrol is carried on board in portable containers, the number of containers is to be kept to a minimum. The containers shall be clearly marked and stowed on the open deck where they can be readily jettisoned and where spillage will drain directly overboard.

27B.2.4.5 Vessels with a hybrid, **lithium-ion battery** or **lead-acid battery** powered **propulsion system** shall comply with the requirements of Annex 1 of this **Code**.

27B.2.5 Electrical Installation

27B.2.5.1 Electrical equipment shall be suitable for use in a marine environment.

27B.2.5.2 The electrical equipment and installations shall be earthed and bonded or such that the **vessel** and any persons on board are protected against electrical hazards.

27B.2.6 Steering, Rudder and Propulsion Systems

27B.2.6.1 A vessel must be provided with an **efficient** means of steering.

27B.2.6.2 The **control position** or **steering position** is to be located such that the person helming the vessel has a clear view for the safe navigation of the vessel.

27B.2.6.3 The steering system may be either direct or remote control. A remote control system shall be a means that can control both the vessel's heading and propulsion.

27B.2.6.4 When the steering system is remote control, arrangements shall be made for emergency steering in the event of failure of the primary steering system. Arrangements may take the form of a steering oar as appropriate, taking into account the operation of the vessel concerned, and are to be to the satisfaction of the **Organising Authority.**

27B.2.7 Bilge Pumping

27B.2.7.1 A minimum of one hand powered bilge pump or a bailer or bucket of minimum capacity of 10 litres shall be provided.

27B.2.7.2 Where a hand powered bilge pump is provided, it shall have a pump capacity of not less than 15 litres per minute.

27B.2.8 Stability

27B.2.8.1 Adequate stability information should be available for the **Organising Authority** to confirm the acceptability of the stability of the vessel in accordance with Section 12A[72] (as appropriate for the size, age and type of the vessel).

[72] **Organising Authorities** should refer to the **National Governing Body** or other **Certifying Authority** in any case they are uncertain as to the acceptability of the vessel's stability information.

27B.2.8.2 The stability tests set out in Section 12A.3.2 – 12A.3.5 shall be carried out with all the vessel's equipment, fuel, **activity related equipment** and number of persons for which it is to be certificated, on board. The engine, electric motor, equipment and **activity related equipment** may be replaced by an equivalent mass. Each person may be substituted by a mass of 82.5 kg for the purpose of the tests.

27B.2.8.3 A vessel meeting the requirements of 12A.2.6 shall carry out the stability test set out in Section 12A.3.5.

27B.2.9 Freeboard

27B.2.9.1 The **freeboard** for an **inflatable boat**, **rigid inflatable boat** or **boat fitted with a buoyant collar** shall be:

.1 300 mm measured from the upper surface at the lowest point of the buoyancy tubes;

.2 250 mm at the lowest part of the transom;

.3 measured with all of its equipment, fuel and the number of persons for which it is certificated to carry onboard, with the boat re-trimmed as necessary to represent a normal operating condition, and with the drainage socks (if fitted) tied up.

27B.2.9.2 A **vessel** which does not meet the **freeboard** requirement at the transom, may still be accepted by the **Organising Authority** provided it can be demonstrated that the boat is self-draining when moving ahead.

27B.2.10 Life Saving Appliances

27B.2.10.1 The following life-saving appliances shall at a minimum be carried on board:

.1 2 buoyant lines of 18m length, each attached to a throwing quoit;

.2 2 red hand flares;

.3 2 buoyant or handheld smoke signals;

.4 1 foghorn in working order;

.5 first aid kit;

.6 2 Thermal Protective Aids.

27B.2.10.2 Lifejackets shall be worn by all persons onboard **race support boats** which are **open boats**, **inflatable boats**, **rigid inflatable boats** and **boats with a buoyant collar** at all times except briefly while changing or adjusting clothing or personal equipment.

27B.2.10.3 Lifejackets shall be provided for all persons onboard **race support boats** which are vessels other than **open boats**, **inflatable boats**, **rigid inflatable boats** and **boats with a buoyant collar.**

27B.2.10.4 Lifejackets or buoyancy aids shall be constructed to:

.1 **SOLAS** standard and **UKCA** or MED approved or **MCA DfT** approved; or

.2 BS EN ISO 12402, Part 3 for lifejackets of 150 Newtons; or

.3 BS EN ISO 12402, Part 2 for lifejackets of 275 Newtons; or

.4 BS EN ISO 12402, Part 5 for buoyancy aids of 50 Newtons.

27B.2.11 Fire Safety

27B.2.11.1 At least one multipurpose fire extinguisher with minimum fire rating of 5A/34B shall be provided on board.

27B.2.12 Radio Equipment

27B.2.12.1 Each **race support boat** should have appropriate devices[73] for ensuring two-way marine radio communications such that:

a) each **race support boat** should have a means of contacting, as a minimum, the Race Committee and other **race support boats**, and

b) at least the **race support boat** or the Race Committee should have a means of contacting the Coastguard.

27B.2.12.2 A clear summary of the radio distress, urgency and safety procedures is to be displayed in full view of the radio operating position.

27B.2.12.3 The vessel shall also be issued with an appropriate ship's radio license from an appropriate authority. (See Section 17.9).

27B.2.13 Navigational Equipment

27B.2.13.1 All vessels must carry on board an **efficient** magnetic compass or other means independent of the vessel's main power supply, to determine the vessel's heading.

27B.2.13.2 Suitable charts for the area or electronic chart plotting system and tide tables shall be carried. This may be achieved through the provision of material as part of the event instructions provided by the **Race Committee**.

27B.2.14 Anchors and Cables

27B.2.14.1 At least one anchor of sufficient mass for the size and type of the vessel must be carried, and as a minimum be of a kedge type (See Section 20, Table 20.1.1).

27B.2.14.2 Cable length should be sufficient length for the area of operation.

27B.2.14.3 Where the anchor cable is of rope, 10 meters or 20% of the minimum required cable length, shall be made of chain connecting the rope, and the anchor.

27B.2.14.4 Vessels should be provided with a rope towline of not less than the length and diameter of the anchor cable.

For the purposes of this section, mean **length** is defined as:

[73] It is strongly recommended that the vessel is fitted with a fixed VHF radio with DSC or be provided with a waterproofed portable VHF radio.

$$Mean\ Length = \frac{(\textbf{Length}\ \text{Overall} + \text{Waterline Length})}{2}$$

27B.2.15 Manning

27B.2.15.1 The **organising authority** shall be satisfied that the **Master** and **crew** are suitably experienced with the type of vessel, range of operations undertaken on the voyage, and are familiar and experienced in all likely sea-state, weather, and light conditions likely to be encountered for duration of the voyage.

27B.2.15.2 The minimum qualification required is RYA Powerboat Level 2 or an equivalent national recognised certificate. Qualifications to operate on such vessels are not required to be commercially endorsed.

All persons onboard should be trained and competent in handling emergency situations. A minimum of one person on board a **Race Support Boat** shall be qualified to operate the VHF radio.

27B.2.15.3 A minimum of one person on board a **Race Support Boat** shall have a maritime first aid qualification. The minimum requirement is RYA First Aid at Sea.

The requirements of 27B.2.15.3 takes precedence over all other maritime first aid requirements set out in this **Code**.

27B.2.16 Prevention of Pollution

27B.2.16.1 A vessel must meet national and local requirements for the prevention of marine pollution which are applicable to the area in which the vessel is operating.

27B.2.16.2 Responsibility for the vessel to be properly equipped and maintained to meet the requirements prevailing rests with the **owner** or **managing agent**.

27B.2.16.3 The disposal of garbage into the sea is prohibited.

27B.2.16.4 Means to prevent pollution by oil is to be acceptable to the **Administration**/authorities in the area(s) in which a vessel operates.

27B.3 Race Support Boats wishing to operate outside the hours of daylight

27B.3.1 A **race support boat** may only operate at night provided it fully complies with the manning requirements of the **code**.

27B.3.2 The minimum **Master** qualification for operation outside the hours of **daylight** is a commercially endorsed RYA/**DfT** Advanced Powerboat Certificate with suitable experience of relevant operation. See also Appendix 1.

27C Vessels Operating as Beachcraft in Commercial use

The alternative arrangements to the standards applied by the **code** which are set out in this section may be accepted on the basis that they provide appropriate standards of safety by considering the vessel's type of operation, equipment carriage requirements and any other mitigating factors required in order to provide an equivalent level of safety.

27C.1 This section is intended for use by all parties involved in the administration of beach hired craft, including:

.1 those issued with a **Small Commercial Vessel Certificate** for **area category of operation** 6 limited to a maximum of 1 **mile** from the beach/harbour for vessels operated by a qualified **Master**, or

.2 those issued with a **Small Commercial Vessel Certificate** for **area category of operation** 6 limited to a maximum of 1000 metres from the beach/harbour for self-drive vessels, and

.3 those issued with certificates under Local Authorities' own licensing schemes.

27C.2 Examples of craft that are not considered to be beachcraft for the purpose of this **Code** include, but are not necessarily limited to, canoes, kayaks, pedaloes, surf boards, lilos and other inflatable toys. Their use may be addressed however, by Local Authority licensing schemes under the Public Health Acts (Amendment) Act 1907 in England, Wales and Northern Ireland or the Civic Government (Scotland) Act 1982 in Scotland.

27C.3 Applications for the acceptance of alternative provisions to those set out in 27C shall be supported by justifications and be formally made via the **Certifying Authority**.

27C.4 The hire operator shall carry out a risk assessment appropriate to the intended operation to ensure that any circumstances, local conditions, equipment and all known risks are mitigated.

27C.5 The following is not considered an exhaustive list of requirements, nor are they relevant to all situations:

.1 All boats operating **at sea** should adopt appropriate safety standards or equivalencies set out in this **Code** for **area category of operation** 6 requirements, and Sections 27C.1 – 27C.3. The carriage of liferafts need not be a requirement for the vessel, but suitable equivalencies from the sections above must be employed;

.2 All tows to be considered part of the **towing** vessel and are to be fit for purpose;

.3 Boats are to be capable of accommodating all persons for which they are licensed, including those contained on board the tow, if applicable. Methods of assessing the number of persons suitable to be carried are contained in the text of this **Code**. In general, hired self-drive craft should not carry more than 4 persons;

.4 **Towing** craft should have a minimum **crew** of two at all times – one to drive, and navigate, the other to watch the tow;

.5 Powered craft should be fitted with a kill cord, to be used at all times when the engine or electric motor is running, in gear and the vessel is making way;

.6 Operating procedures, and equipment where applicable, are to be in place for recovery of persons from the water, including measures to avoid injury from the boat and machinery. For vessels fitted with conventional propellers, consideration should be given to the fitting of a propeller guard, especially where recovery of persons is commonplace;

.7 Children under the age of 8 should be accompanied by an adult at all times, including when on a tow;

.8 Inflatable tows should be capable of supporting 110% of the maximum manufacturer's weight limit, with any one separate inflatable **compartment** punctured or deflated;

.9 Lifejackets/buoyancy aids are to be worn at all times. For operations where buoyancy aids may be considered more practical, their use may be accepted based on alternatives stated in Sections 27C.1 – 27C.3;

.10 Towlines should be approximately 25 to 30 metres long. A method of quick release in the event of an emergency is to be available;

.11 Parascending lines, harnesses and parachutes are to be inspected daily by the operator and maintained in accordance with the manufacturer's recommendations;

.12 Operating areas and any associated channels for slow speed transit to and from the shore, should be clearly marked;

.13 Operating areas, trading dates and daily hours for operation are to be defined.

27C.6 Additionally the hire operator shall:

.1 hold a nationally recognised qualification for the hiring activity concerned, i.e. water sports instructors certificate;

.2 hold a Local Authority licence/concession to operate, where applicable;

.3 maintain visual contact with the hired vessels at all times, and provide a means of immediate rescue in the event of an accident;

.4 ensure that vessels and associated equipment are maintained in proper state for the beginning of each hire;

.5 report and record to the Local or and **Certifying Authority**, all incidents which have, or could have led to injury;

.6 ensure that hirers are provided with sufficient information about the vessel and its equipment to enable it to be used safely, and that hirers are competent for the intended operation; and

.7 ensure a procedure is in place for immediate contact with the Coastguard, or other relevant emergency service, in the event of an accident or incident.

28 Manning

The purpose of this section is to set out the minimum safe manning requirements for **crew** members and the qualifications necessary to ensure the safe operation of a **vessel**.

28.1 Minimum Manning and Qualification Requirements for Vessels other than Bare-Boat Charter, Hire or Lease

28.1.1 A **vessel** shall be safely manned, as a minimum, in accordance with the manning and qualification requirements indicated in Tables A5.1 and A5.2 of Appendix 5.

28.1.2 Anyone employed or engaged in any capacity onboard a **vessel** shall complete the required **Administration-approved** mandatory training courses listed in Table A5.3.

If completion of the relevant mandatory courses cannot be demonstrated to the satisfaction of the **Administration**, then the **vessel** may be detained.

28.1.3 Anyone employed or engaged in any capacity onboard a **vessel** whose normal place of work is on a ship shall hold a valid medical fitness certificate. See **MIN** 724.

28.1.4 All qualifications, licences, certificates of competence and **Certificates of Competency** shall be appropriate to the **vessel's area category of operation** and types of vessel for which they are used. Qualifications differing from those listed in Table A5.1 and A5.2 which are of equal standing or specialist application may be considered by the **Administration**.

28.1.5 **MCA**-recognised Yachtmaster certificates and RYA certificates of competence shall be endorsed for **commercial** use, and suitable for use in vessel **up to** 24 meters in **length**.

28.1.6 Sailing Schools, or other controllers of organised activities may submit alternative qualifications to those listed in Tables A5.1 and A5.2. Any such submissions to the **Administration** will be considered upon their merits.

28.1.7 All **crew** in charge of a navigational watch shall hold an appropriate licence, certificate of competence or **Certificate of Competency**.

28.1.8 A licence, certificate of competence, **Certificate of Competency** or certificate of service shall not, on its own, be regarded as evidence of the ability to serve in a particular rank on a specific vessel. See Table A5.1.

28.1.9 The **vessel owner/operator** shall ensure that there are sufficient trained personnel on board to work the **vessel** having due regard for the nature and duration of the voyage.

28.1.10 All **Certificates of Competency** and Boatmaster's Licences shall be revalidated every five years. All other licences, certificates, RYA Certificates of Competence, and Local Authority Licences, shall be revalidated at their required intervals to maintain validity for use on **vessels** under this **Code.**

28.2 Single Handed Operations

The **Administration** does not recommend **single handed operations**.

28.2.1 **Single handed operations** are not permitted where:

.1 a **vessel** is operating in **area category of operation** 0, 1 or 2; or

.2 the duration of the voyage exceeds 8 hours; or

.3 a watch system is necessary to maintain the safe navigation of the **vessel**;

.4 a **vessel** is operating in conditions of restricted visibility;

.5 a **vessel** is operating at **high speed** and does not meet the requirements of Section 25.7;

.6 the **Certifying Authority** deems the **vessel** to not be suitable for **single handed operations** due to the size and arrangement of the **vessel**.

28.2.2 A **vessel** shall not undertake **single handed operations** unless permitted by the **Certifying Authority**. The **Certifying Authority** may permit a **vessel** to undertake **single handed operation** where the following requirements are met:

.1 the **Certifying Authority** is satisfied it is necessary for the **vessel** to undertake **single handed operations**;

.2 the **Certifying Authority** is satisfied that the **vessel** is suitable for **single handed operations** due to the size and arrangements of the **vessel**;

.3 the **vessel** is restricted to **area category of operation** 3, 4, 5 or 6; and

.4 during **single handed operations** the **vessel** shall only operate in **favourable weather** conditions, subject to favourable official weather forecasts for the area throughout the period of operation;

.5 the **Certifying Authority** is satisfied the **vessel's** Safety Management System adequately addresses the risks involved in single-handed operations.

28.2.3 Where a **vessel** is permitted to undertake **single handed operations**, a **vessel's Small Commercial Vessel Certificate** shall be endorsed with the following: "suitable for **single handed operations**".

28.2.4 In all cases where **single handed operations** take place the **vessel owner/operator** and the **Master** shall be satisfied that it is safe to do so and shall at a minimum meet the following requirements:

.1 a lifejacket which meets the requirements of Section 14.4 shall be worn at all times by the **Master**;

.2 a 406 MHz personal locator beacon (PLB)[74] [75] with GPS and a light shall be worn by the **Master** whilst on the open deck **at sea**;

.3 no overside working shall take place whilst the **vessel** is being operated single handed;

.4 details of the time and point of departure, voyage plan and the Expected Time of Arrival (ETA) of every single-handed voyage shall be left with a person ashore and the person ashore shall be notified of the safe arrival of completion of each voyage;

.5 communication shall be made with the person ashore or with a **vessel** in company at agreed regular intervals; and

.6 all **inflatable boats**, **boats fitted with a buoyant collar**, **rigid inflatable boats** and **open boats** that achieve planning speed (including tenders and daughter craft) shall meet the requirements of Section 8.8.

28.3 Vessels on a Bare-Boat Charter

28.3.1 A **vessel** operating on **bare-boat charter** for the sport or pleasure of the **charterer(s)**, is not subject to the safe manning requirements of Section 28.1 or the training requirements of 28.8, 28.9 or 28.10.

28.3.2 The **owner/managing agent** of a **vessel** offered for a **bare-boat charter** for the sport or pleasure of the **charterer(s**) shall ensure that the **charterer(s)** of the **vessel** are provided with sufficient information about the **vessel** and its equipment to enable it to be safely navigated.

28.3.3 Where the **charterer(s)** of a **vessel** for **bare-boat charter** intends to use the **vessel** for **commercial use** the **vessel** shall be subject to the safe manning requirements of Section 28.1.

28.3.4 The **vessel owner/managing agent** of a **vessel** offered for **bare-boat charter** intended for **commercial use** shall inform the **charterer(s)** that the intended **Master** and **crew** of the **vessel** must be competent and qualified for any intended voyage. Details of handover procedures are given in Section 28.4.2 and Appendix 9.

28.4 Vessels on a Skippered Charter

28.4.1 General

28.4.1.1 Prior to undertaking a voyage the **Master** of a **vessel** on a skippered **charter** shall ensure that all persons on board are briefed on safety in accordance with, at a minimum, the following:

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[74] This has a global range and alerts the nearest Coastguard Station to a Man Overboard situation. It will typically take 5 minutes for the Coastguard to be aware of your position and they can then locate a casualty in the water to an accuracy of 100 m.

[75] 406 MHz PLBs shall be registered with the EPIRB Registry, details of which are given in MGN 665 (M+F) Registration of EPRIBs and 406 MHz PLBs used in the maritime environment, **as amended**.

.1 stowage and use of personal safety equipment (such a lifejackets, thermal protective aids and lifebuoys); and

.2 procedures to be followed in an emergency.

28.4.1.2 The **Master** shall brief at least one person on board on the following:

.1 location of liferafts and the method of launching;

.2 procedures for the recovery of a person from the sea;

.3 location and use of pyrotechnics and any other recognised means of distress signalling;

.4 procedures and operation of radios and means to raise distress carried on board;

.5 location of navigation and other light switches;

.6 location and use of firefighting equipment;

.7 method of starting, stopping and controlling the main engine;

.8 method of navigating to a suitable port of refuge; and

.9 location of Stability Guidance Booklet and Stability Information Booklet, as applicable.

Further details of the briefing requirements are set out in Appendix 8. Safety cards or other alternative means of conveying the information listed in 28.4.1.2 and Appendix 8 may be considered an acceptable form of providing this information.

28.4.2 Handover Procedure for Owners/Managing Agents

28.4.2.1 The **vessel owner**, **managing agent** or an appointed representative shall undertake a handover of the **vessel** to the **charterer(s)** to complete, at a minimum, the following familiarisation tasks:

.1 a demonstration of the stowage of all gear and the methods of use on all onboard lifesaving and firefighting appliances;

.2 the location and method of operation of all sea cocks and bilge pumps;

.3 a demonstration to ensure familiarisation with all mechanical, electrical and electronic equipment;

.4 declare details of routine maintenance required for equipment;

.5 a demonstration of checks to be carried out prior to starting the engine, whilst running and after stopping;

.6 show the method of setting, sheeting and reefing each sail;

.7 show the Stability Guidance Booklet and/or Stability Information Booklet, as appropriate and highlighting any limitations of operation;

.8 a demonstration of safe use of any lifting equipment and provide guidance on safe use of **towing** of tenders and **activity related equipment**.

28.4.2.2 The **vessel owner**, **managing agent** or an appointed representative shall ensure that the **vessel's** file is shown to the chartering **Master**. The **vessel's** file shall, at a minimum, contain the following:

.1 registration papers;

.2 copies of the insurance policy;

.3 other necessary certificates;

.4 details of permitted area of operation;

.5 instruction manuals;

.6 diagrams of electrical wiring, piping and plumbing;

.7 inventory of the vessel's equipment;

.8 plan(s) showing the stowage position of all movable equipment necessary for the safe operation of the **vessel**; and

.9 a list of names and telephone numbers (both in and out of office hours) of persons who may be contacted if the chartering **Master**, or the vessel, is in need of assistance.

28.4.2.3 At the end of the **charter** the **vessel owner**, **managing agent** or an appointed representative, together with the chartering **Master** shall complete the following tasks:

.1 the chartering **Master** shall advise the **vessel owner/managing agent** of any lost or damaged equipment or used medical stores;

.2 the chartering **Master** shall advise the **vessel owner/managing agent** of any defects or damage to the **vessel**;

.3 the **vessel owner/managing agent** shall be present to review any matter deemed important.

28.5 Trainees and Training Vessels

28.5.1 A **trainee** shall not, unless authorised by the **Administration**, be less than 12 years of age and any person below this age shall be considered as a **passenger**.

28.5.2 A **trainee** shall be provided with the same accommodation, equipment and provision requirements as set out for **passengers** in the **Code**.

28.5.3 The presence of **trainee(s)** onboard a **vessel** shall be, at a minimum, documented in the vessel's log.

28.5.4 A **trainee** should not:

.1 form part of the **crew** in order for a vessel to be safely manned;

.2 be responsible for any safety critical duties;

.2 have any employment contract or any contractual employment relationship with the **owner/operator** of the **vessel**;

.3 receive any renumeration for their activities on board;

.4 be considered to be a **seafarer**; and

.5 be considered as a **passenger**;

28.6 Hours of Work

28.6.1 **Vessels** to which this **Code** applies and which comply with its requirements, will be exempt from the need to comply fully with the Merchant Shipping (Standards of Training, Certification and Watchkeeping) Regulations 2015, **as amended**, and the Merchant Shipping (Safe Manning, Hours of Work and Watchkeeping) Regulations 1997, **as amended**, provided the manning of the **vessel** is in accordance with the standards and **area categories of operation** given in sections 3.10 and 28 of this **Code**.

28.6.2 All **vessels** certificated under this **Code** shall be sufficiently manned to avoid the need to work excessive hours. The **Master** shall be responsible for ensuring that they and all **crew** members are properly rested when beginning work, and that they obtain adequate rest when not on duty.

28.6.3 The minimum hours of rest for anyone employed on board should be not less than:

.1 10 hours in any 24-hour period; and

.2 77 hours in any seven day period.

28.6.4 The periods of rest should be broken down into no more than 2 periods at least one of which should be at least 6 hours.

28.6.5 Exceptions to the minimum hours of rest may be allowed where:

.1 agreed between the **Master** and **crew** members;

.2 the health and safety of the **Master** and **crew** are not compromised;

.3 the safety of the **vessel** is not compromised.

28.6.6 Such exceptions set out in 28.6.5 may take account of:

.1 more frequent or longer leave periods;

.2 granting of compensatory leave for watchkeeping **seafarers** or **seafarers** working on board **vessels** on short voyages.

28.7 Keeping a Safe Navigational Watch

28.7.1 The **Master** of a **vessel** certificated under this **Code** shall ensure that the watchkeeping arrangements are adequate for maintaining a safe watch or watches, taking into account the type of vessel, the type of operation, the duration of the voyage, and any prevailing weather or sea state conditions likely to be encountered.

28.7.2 The Master and all **Crew** in charge of a navigational watch serving on a vessel certificated under this **Code** shall hold an appropriate licence, certificate of competence, or **Certificate of Competency.**

28.7.3 Requirements for qualifications and experience of any person(s) assisting the **Master** in navigational watchkeeping are listed in Table A5.1.

28.8 Radar Training

28.8.1 Vessels Operating in Area Category of Operation 0-2

28.8.1.1 Where a **vessel** operating in **area category of operation** 0, 1 or 2 is required to be equipped with a radar by section 19.7 of this **Code**, the **Master** and all **crew** responsible for a Navigational Watch shall complete an **MCA** approved or recognised radar training course listed in **MIN** 724.

28.8.1.2 Alternatively to 28.8.1.1, a **Master**, or **crew** responsible for a Navigational Watch, holding an RYA Yachtmaster Offshore, RYA Yachtmaster Ocean, or STCW certificate of competency appropriate for use in **area category of operation** 0, 1 or 2 (see Appendix 5) issued before the date of entry into force of this **Code** are not required to meet 28.8.1.1 if they can demonstrate experience of using a radar system or have completed an alternative radar training course (e.g. a one day Radar Training course) commensurate to small vessels prior to the date of entry into force of this **Code**.

28.8.1.3 Alternatively to 28.8.1.2, **crew**, other than the **Master**, responsible for a Navigational Watch holding certification issued before the date of entry into force of this **Code** at a level below RYA Yachtmaster Offshore (see Appendix 5) are not required to meet the 28.8.1.1 if they can demonstrate experience of using a radar system or have completed an alternative radar training course (e.g. a one day Radar Training course) commensurate to small vessels prior to the date of entry into force of this **Code**.

28.8.1.4 In all cases, the owner and operator shall ensure that the **Master** and **crew** responsible for a Navigational Watch are trained and familiar with the use of the specific equipment onboard.

28.8.2 Vessels Operating in Area Category of Operation 3-6

28.8.2.1 Where a vessel operating in **area category of operation** 3, 4, 5 or 6 is installed with a Radar, the **Master**, and all **crew** responsible for a Navigational Watch shall be trained and familiar with the specific equipment on board and are strongly recommended to complete either a type specific training course by the manufacturer or to complete a one-day radar training course commensurate to small vessels or meet the requirements of 28.8.1.1.

28.9 Electronic Chart Systems (ECS) Training

28.9.1 Where a **vessel** is equipped with an Electronic Chart System approved as meeting the standards of MGN 319 (M+F), **as amended**, the **Master** and all **crew** responsible for a navigational watch shall complete the Electronic Chart Systems and Bridge Watchkeeping module of an **MCA** approved Small Ships Navigation and Radar course, or an **MCA** approved or recognised training course listed in **MIN** 724.

28.9.2 Where a **vessel** is equipped with an Electronic Chart System and up to date paper charts, the **Master** and **Crew** responsible for a navigational watch are strongly recommended to complete either a type specific training course by the manufacturer, the Electronic Chart Systems and Bridge Watchkeeping module of an **MCA** approved Small Ships Navigation and Radar course, or an **MCA** approved or recognised training course listed in **MIN** 724.

28.9.3 In all cases, **Masters** and **Crew** shall undertake onboard familiarisation training with the specific equipment of the **vessel**.

28.10 Fire Safety Training

28.10.1 All **Masters** and **Crew** shall undertake onboard familiarisation training with the specific firefighting equipment of the **vessel**.

28.10.2 For **vessels** up to 15m in length, the **Master** or at least one **crew** member shall additionally have completed:

.1 an **MCA** approved one day fire fighting course; **or**

.2 an STCW Fire Prevention and Fire Fighting course[76]; or

.3 an MCA approved or recognised training course as may be listed in MIN 724.

no later than 5 years after the date of entry into force of this **Code**.

28.10.3 For vessels 15m in length or over, the **Master** and at least one **crew** member shall additionally have completed:

.1 an **MCA** approved one day fire fighting course; or

.2 an STCW Fire Prevention and Fire Fighting course[76]; or

.3 an **MCA** approved or recognised training course as may be listed in MIN 724.

no later than 5 years after the date of entry into force of this Code.

[76] Where STCW Fire Prevention and Fire Fighting training is required to be updated/refreshed to maintain the validity of a UK Certificate of Competency (CoC), persons working on board **vessels** under this **Code** whilst holding UK CoCs must undertake updating/refresher training every five years in accordance with **MSN** 1865, as amended.

29 Prevention of Pollution

The purpose of this section is to set out the minimum requirements to satisfy appropriate national and international regulations and **standards** to ensure prevention of marine pollution from **vessels**.

29.1 Port Waste Reception Facilities

29.1.1 All vessels operating in UK or EU ports and harbours are subject The Merchant Shipping (Port Waste Reception Facilities Regulations) 2003 (SI 2003/1809). (See **MIN** 724).

29.2 Sewage

29.2.1 The following vessels are subject to The Merchant Shipping (Prevention of Pollution by Sewage from Ships) Regulations 2020 (MARPOL Annex IV), (SI 2020/620). (See **MIN** 724):

.1 all **vessels** over 400 GT and engaged on an **international voyage**; or

.2 all **vessels** of less than 400 GT certified to carry more than 15 persons and engaged on an **international voyage**.

Prohibitions/requirements summarised as:

Sea area	Discharge criteria – regulation 11 of **MARPOL** Annex IV
All **ships** within 3 nm from **land**	No discharge except from an approved/certified sewage treatment plant
All **ships** between 3 and 12 nm from **land**	No discharge except (1) from approved/certified sewage treatment plant; or (2) approved comminating and disinfecting system
All **ships** more than 12 nm from **land**	Discharge from either (1) or (2) or sewage from a holding tank when the ship is en route proceeding at not less than 4 knots at a moderate rate **approved** by the **Administration**

29.2.2 A **vessel** which is not required to comply with Section 29.2.1 and operates in an area(s) where the direct overboard discharge from a water closet is prohibited shall be fitted with a “holding tank” of sufficient capacity to store waste for discharge shore facilities. (See **MIN** 724).

29.3 Garbage

29.3.1 All **vessels** are subject to The Merchant Shipping (Prevention of Pollution by Garbage from Ships) Regulations 2020 (MARPOL Annex V), (SI 2020/621). (See **MIN** 724).

29.3.2 All **vessels** are prohibited from discharging garbage into the sea, with limited exceptions. Under certain conditions discharge into the sea of food wastes, animal carcases, cleaning agents and additives contained in hold washwater, deck and external surface washwater and cargo residues which are not

considered to be harmful to the marine environment is permitted. The conditions are summarised in Table 29.3.2.

Table 29.3.2 – Summary of restrictions to the discharge of garbage into the sea under MARPOL Annex V

(Note – Table 29.3.2 is intended as a summary reference. The provisions in **MARPOL** Annex V and the Polar Code, not Table 29.3.2, prevail)

Garbage type[1]	**Outside special areas and Arctic waters Regulation 4 (Distances are from the nearest land)**	**Within special areas and Arctic waters Regulation 6 (Distances are from nearest land, nearest ice-shelf or nearest fast ice)**
Food waste comminuted or ground[2]	≥3 nm from nearest **land** (as far as practicable) and en route	≥12 nm from nearest **land** (as far as practicable)[3] and en route
Food waste not comminuted or ground	≥12 nm from nearest **land** (as far as practicable) and en route	Discharge prohibited
Cleaning agents and additives[4] in deck and external surfaces washwater	Discharge permitted	Discharge permitted
Animal Carcasses (should be split or otherwise treated to ensure the carcasses will sink immediately)	Must be en route and as far from the nearest **land** as possible. Should be >100 nm and maximum water depth	Discharge prohibited
All other garbage including **plastics**, synthetic ropes, fishing gear, **plastic** garbage bags, incinerator ashes, clinkers, cooking oil, floating dunnage, lining and packing materials, paper, rags, glass, metal, bottles, crockery and similar refuse	Discharge prohibited	Discharge prohibited

1	When garbage is mixed with or contaminated by other harmful substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply.
2	Comminuted or ground food wastes must be able to pass through a screen with mesh no larger than 25 mm.
3	The discharge of introduced avian products in the **Antarctic area** is not permitted unless incinerated, autoclaved or otherwise treated to be made sterile. In polar waters, discharge shall be made as far as practicable from areas of ice concentration exceeding 1/10; in any case food wastes shall not be discharged onto the ice.
4	These substances must not be harmful to the marine environment.

29.3.3 Table 29.3.3 details **vessel** requirements for placards, garbage management plans and garbage record keeping.

Table 29.3.3 – Vessel requirements for placards, garbage management plans and garbage record keeping

Requirements	Applicability
Placards	All **vessels** >12 m LOA (see the Guidelines for the implementation of **MARPOL** Annex V Resolution MEPC.295(71), **as amended**). See The Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008, **as amended** (SI 2008 No. 3257)
Garbage Management Plan[77]	All **vessels** of 100 GT or more; or All **vessels** certified to carry 15 or more persons See The Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008, **as amended** (SI 2008 No. 3257)
Garbage Record Book	All **vessels** over 100 GT; or All **vessels** certified to carry 15 or more persons and engaged on an **international voyage**. See The Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008, **as amended** (SI 2008 No. 3257)

29.4 Anti Fouling Systems

29.4.1 All vessels are subject to **The Merchant Shipping (Anti-Fouling Systems) Regulations 2009 (SI 2009 No. 2796) as amended**. (See **MIN** 724).

29.5 Air Pollution

29.5.1 All **vessels** installed with marine **diesel** engines constructed on or after 1st January 2000 with a power output greater than 130 kW shall be issued with an Engine International Air Pollution Prevention (EIAPP) Certificate and a Technical File, a copy of which shall be presented to the **Certifying Authority** and shall remain on the **vessel's** file. (See **MIN** 724).

29.5.2 All **vessels** with **diesel** and hybrid **propulsion systems** installed on or after 1st January 2021 operating in the Baltic and North Sea NOx emission control areas shall comply with The Merchant Shipping (Prevention of Air Pollution from Ships) (Amendment) Regulations 2021 (SI 2021/1108), **as amended.**

29.5.3 All **vessels** with **diesel** and hybrid **propulsion systems** installed on or after 1st January 2021 which do not meet the requirements of **The Merchant**

[77] SI 2008 No. 3257 states that this Plan must be in accordance with the guidelines developed by the **IMO** and set out in MGN 631 (M+F) and MGN 632 (M+F), each **as amended**.

Shipping (Prevention of Air Pollution from Ships) (Amendment) Regulations 2021 (SI 2021/1108), as amended, shall not operate in the Baltic and North Sea NOx emission control area[78]. The inability to operate in the Baltic and North Sea NO_X emission control area due to non-compliance with the Merchant Shipping (Prevention of Air Pollution from Ships) (Amendment) Regulations 2021 shall be noted on the vessel's **certificate**.

29.5.4 **Vessels** that have been specifically designed and solely used for recreational purposes are not required to comply with 29.5.2 and shall not be limited in area of operation as per 29.5.3.

29.5.5 **Vessels** installed with marine **diesel** engine(s) with a combined propulsion power of less than 750 kW are not required to comply with 29.5.2 and shall not be limited in area of operation as per 29.5.3 if it is demonstrated, to the satisfaction of the **Administration**, that the **vessel** cannot comply with the standards in 29.5.2 because of design or construction limitations of the **vessel**.

29.6 Oil Pollution Prevention

29.6.1 All **vessels** are subject to The Merchant Shipping (Prevention of Oil Pollution) Regulations 2019 (SI 2019 No. 42), **as amended**[79].

29.6.2 All **vessels** shall meet the requirements for oil pollution prevention as set out in Appendix 6 of this **Code**.

[78] **MARPOL** Annex VI, Regulation 13.6

[79] The Annex to the International Maritime Organisation (IMO) MEPC.1/Circ 642 provides "Revised Guidelines for Systems Handling Oily Wastes in Machinery Spaces of Ships Incorporating Guidance Notes for an Integrated Bilge Water Treatment System (IBTS).

30 Safety Management

The purpose of this section is to outline the Safety Management System requirements which are appropriate and applicable for vessels operating for sport or pleasure.

30.1 General

30.1.1 All **vessels** and beach craft within the scope of this **Code** shall comply with the requirements of Section 30.2 within 3 years of the **Code** coming into force.

30.1.2 During the **vessel's compliance examination** and **renewal examinations**, the **vessel's** Safety Management System shall be made available to the **Certifying Authority** to review the implementation of the contents and any documented reviews and improvements implemented by the **vessel owner/operator**.

30.1.3 The **Certifying Authority** shall review the contents of the vessel's Safety Management System against the requirements of Appendix 7.

30.2 Safety Management System

30.2.1 All Vessels except those Vessels Operating on a Bareboat Charter for Sport or Pleasure

30.2.1.1 **Vessel owners/operators** shall implement a Safety Management System (SMS) which is proportionate with size and complexity of the **vessel(s)** and company's operations. The SMS shall consider both terrestrial and marine aspects as appropriate to the **vessel(s)** and company's operations. See Appendix 7 for details of the areas which must be addressed by a SMS.

30.2.2 Vessels Operating on a Bareboat Charter for Sport or Pleasure

30.2.2.1 The **owner/operator** of a **vessel** operating on **bareboat charter**, or hire as a pleasure vessel, shall meet the requirements of 30.2.1.1.

30.2.2.2 The **charterer** of a **vessel** operating on **bareboat charter**, or hire as a pleasure vessel, is not subject to the sections 9 – 11 of the Safety Management System requirements of Appendix 7.

APPENDIX 1

ALTERNATIVE COMPLIANCE STANDARDS FOR MANNED RIGID INFLATABLE BOATS AND OPEN BOATS WISHING TO OPERATE OUTSIDE THE HOURS OF DAYLIGHT WITHIN AREA CATEGORY 3 OR 5

For the purposes of this Appendix, the following definitions are provided for use when applying this Appendix:

'full risk assessment' means a written risk assessment that fully considers all risks that the **vessel** and persons on board could reasonably expect to encounter during the operation outside of the hours of **daylight**. Where risks are identified in the risk assessment, mitigation to reduce any identified risk must be taken where possible to the **vessel**, where possible, shall be provided.

'wearing of a lifejacket' means that all persons on board shall wear an approved lifejacket in accordance with the requirements of the **Code**. Where additional personal exposure protection clothing is worn, the lifejacket shall be suitable to be worn with that clothing. The lifejacket shall be fitted with a light.

'carrying of personal exposure protection clothing' means all persons on board shall have the following:

.1 a dry suit, a floatation suit meeting EN ISO 15027-1 or other suitable foul weather clothing;

.2 warm head wear; and

.3 where the dry suit, flotation suit meeting EN ISO 15027-1, or other foul weather clothing is not insulated, warm clothing is not insulated, warm clothing worn beneath the dry suit, flotation suit meeting EN ISO 15027-1, or other suitable foul weather clothing.

An **immersion suit** is not suitable foul weather clothing.

1. Certification

1.1 "Area Category 3 Restricted" is an endorsement to a **vessel** already certificated to an existing **area category of operation** and not an **area category of operation** in its own right.

1.2 The **vessel** shall meet all the requirements of, and be certificated to, an **area category of operation**. This **Certificate** shall then be endorsed with "Area Category 3 Restricted". The additional operational limitations and requirements as per Figure A1.1 shall be included within the 'conditions' section of the **Certificate**.

2. Manning

2.1 The minimum **Master** qualification for operation outside the hours of **daylight** or where the **vessel** is used in a **high speed** or planing mode operation, is a commercially endorsed RYA/**DfT** Advanced Powerboat Certificate with suitable experience of relevant operation. Minimum manning requirements shall be endorsed within the 'conditions' section of the **Certificate** for clarity to the **vessel owner/operator**.

Figure A1.1 - Acceptance Matrix for Restricted Area Category 3 Rigid Inflatable Boats and Open Boats without a Permanent Substantial Enclosure

Daylight & Favourable Weather Lower Area Category of Operation)		RESTRICTED CATEGORY 3 24/7 (without a Permanent Substantial Enclosure)			
		Distance from a safe haven	Favourable Weather & Seasonal Restrictions[80]	Favourable Weather & NO Seasonal Restrictions	NO Weather Restriction & NO Seasonal Restrictions
From a Safe Haven CATEGORY 4		Up to 20 nm	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED
		Up to 10 nm	1. Carrying of personal exposure protection clothing. To be worn at the discretion of the Master. 2. Wearing of lifejackets.	1. All vessels to have a secondary means of propulsion with totally independent systems. 2. Full Risk Assessment. 3. Carrying of personal exposure protection clothing. To be worn at the discretion of the Master. 4. Wearing of lifejackets.	NOT PERMITTED
From a Point of Departure CATEGORY 6	Point of Departure CATEGORY 5	Up to 3 nm	1. Carrying of waterproof and warm clothing. To be worn at the discretion of the Master. 2. Wearing of lifejackets.	1. Carrying of waterproof and warm clothing. To be worn at the discretion of the Master. 2. Wearing of lifejackets.	1. All vessels to have a secondary means of propulsion with totally independent systems. 2. Full Risk Assessment. 3. Carrying of personal exposure protection clothing. To be worn at the discretion of the Master. 4. Wearing of lifejackets.

[80] Seasonal Restrictions – Restricted to operation between 1st April and 31st October (Northern Hemisphere); and between 1st October and 30th April (Southern Hemisphere).

APPENDIX 2A

LIQUID PETROLEUM GAS INSTALLATION FOR DOMESTIC MARINE USE

1. General

1.1 A liquid petroleum gas system shall be constructed to ISO 10239. Alternatively, an equivalent **standard** will be acceptable where suitable gas detection equipment is fitted.

1.2 **Existing vessels** transitioning from **MGN** 280 or the Red Code or Yellow Code may continue to use their current liquid petroleum gas installation until the system reaches end of life. All replaced life-saving appliances shall comply with the standards of this Appendix.

2. Stowage of Gas Cylinders

2.1 LPG cylinders, regulators and safety devices shall be stowed on the open deck (where leakage will not accumulate) or in a gas cylinder storage locker which is a **compartment** that is vapour-tight to the **vessel's** interior and fitted with a vent and drain, so that gas which may leak can disperse overboard.

2.2 The vent shall be installed near the top of the gas cylinder storage locker.

2.3 The drain shall:

.1 be located at the bottom of the gas cylinder storage locker;

.2 run to the outside of the craft and terminate 75 mm or more above the 'at rest' waterline; and

.3 be not less than 19 mm in diameter.

The drain and gas cylinder locker ventilation shall be 500 mm or more from any opening to the **vessel's** interior.

2.4 Any electrical equipment located in gas cylinder lockers shall be certified to recognised **standard** for use in a potentially explosive atmosphere (See **MIN** 724).

2.5 The cylinders and associated fittings shall be secured against movement and protected from damage in any foreseeable event.

3. Cylinders and Attachments

3.1 The supply pressure part of a liquid petroleum gas system shall be fitted with a readily accessible, manually operated isolation valve.

3.2 Where a liquid petroleum gas system utilises multiple cylinder installations, each cylinder shall be fitted with a shutoff valve and non-return valves located near the stop valves. Where there is a changeover device (automatic or

manual) it shall be provided with non-return valves to isolate any empty cylinder.

3.3 Where multiple cylinders can supply a liquid petroleum gas system, the system shall not be used with a cylinder removed unless the unattached pipe is fitted with a suitable gas tight plug arrangement.

3.4 Cylinders not in use or not being fitted into an installation shall have the protecting cap in place over the cylinder valve.

3.5 A bubble leak detector shall be fitted in the gas outlet pipe as close to the cylinder as possible.

4. Fittings and Pipework

4.1 Systems shall comprise rigid pipes made from solid drawn copper alloy or stainless steel tubing. Steel tubing (other than stainless steel), aluminium or any materials having a low melting point shall not be used. Connections between rigid pipe sections shall be made with hard solder (minimum melting point 450 degrees centigrade).

4.2 Compression or screwed fittings of an appropriate **standard** are recommended for use in LPG pipework installations.

Components of LPG pipework installations which are not rigid pipes are recommended to have compression or screwed fittings meeting an appropriate **standard**. (See **MIN** 724).

4.3 Where a flexible hose is used it shall:

.1 meet the requirement of EN 1763 class 2, 3 or 4 or equivalent;

.2 not exceed 1m in length;

.3 be installed in a manner that gives access for inspection along its whole length; and

.4 be protected from inadvertent damage where appropriate.

4.4 Pipework which passes through the following areas shall be solid and without joints:

.1 dedicated accommodation sleeping areas,

.2 **machinery spaces**; and

.3 high fire risk spaces.

An exception to 4.5.2 is permitted where the sleeping accommodation is adjacent to the **wheelhouse** or galley. In such cases joints are permitted, provided the number of joints are minimised to only those which are necessary to the function of the pipework system.

4.5 Pipework which passes through bulkhead(s) shall not compromise bulkhead integrity and shall be fitted with a gas tight gland(s).

5. Appliances

5.1 All appliances shall be secured to avoid movement. In the case of a gimballed appliance, the installation of the appliance shall be secured against unintended movement.

5.2 An appliance must be attended at all times unless it is an unattended appliance. All unattended appliances shall be of the **room sealed type**.

5.3 For the purpose of the **Code cookers** (including hobs) are not classed as unattended appliances.

5.4 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.

5.5 Catalytic type **heating appliances** shall not be used.

6. Ventilation

6.1 Spaces containing gas consuming appliances and storage containers shall be adequately ventilated.

6.2 The ventilation requirements of a space containing an LPG appliance shall be assessed against an appropriate **standard** (e.g. Annex B of ISO 10239).

6.3 LPG appliances which are used intermittently and have ventilators that can be closed, shall have appropriate signage warning of the need for ventilators to be opened before the appliance is used.

7. Gas Detection

7.1 Any **compartment** containing, or space adjoining, a gas-consuming appliance shall be equipped with means for detecting any leakage of gas.

7.2 It is strongly recommended to have means for detecting accumulation of gas in areas where an explosive atmosphere can form.

7.3 Gas detectors' heads shall be securely fixed in the lowest practicable 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. **machinery space** bilge) the detector head shall at least be fitted below the lowest point of ignition.

7.4 A gas detector system shall be activated 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 gas detector system shall incorporate a visible and audible alarm, which can

be heard in the space concerned and the **control position(s)** or **steering position**.

7.5 Gas detection system components likely to be in an explosive atmosphere shall not be capable of igniting that atmosphere.

7.6 The gas detection system shall be tested frequently and maintained in accordance with the manufacturer's instructions.

7.7 Persons must not sleep in spaces where gas-consuming open-flame appliances are left burning, due to the risk of carbon monoxide poisoning.

7.8 **Existing vessels** transitioning from the Yellow Code, Blue Code, Red Code or **MGN** 280 shall meet the requirements of this section by the vessel's first **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

8. Response to suspected or detected gas leakage

8.1 A notice(s) detailing the action to be taken when an alarm is given by the gas detection system shall be displayed prominently in the **vessel**, and shall as a minimum set out the following instructions:

.1 where gas leakage is detected or suspected, all gas-consuming appliances shall be shut off at the main supply from the cylinder(s);

.2 no smoking or naked lights shall be permitted until the gas leakage has been eliminated and the spaces have been fully ventilated;

.3 the use of switches or other potential means of generating a spark shall not be permitted until the gas leakage has been eliminated and the spaces have been fully ventilated; and

.4 naked lights shall never be used as a means of locating gas leakage.

9. Testing and Maintenance

9.1 LPG systems shall be tested regularly for leakage. See also Section 15.2.7.

9.2 Personnel involved in the installation, maintenance, servicing or repairing of gas systems on vessels must be Gas Safe Registered and hold a marine technician qualification, or equivalent if outside the UK.

9.3 All LPG system connections shall be checked for leakage regularly. All connections should be checked by:

.1 routine observation of the bubble leak detector (if fitted);

.2 visual inspection;

.3 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);

.4 manual leak testing (without breaking into the system);

.5 testing with soapy water or non-ammonia based detergent solution (with appliance-burner valves closed, and cylinder and system valves open).

9.4 Where gas leakage is identified, cylinder valves shall be closed and the system repaired before any further use.

APPENDIX 2B

ON BOARD INSTRUCTIONS AND INFORMATION FOR HEATING APPLIANCES WHICH ARE OF A FIRED TYPE

1. Instructions and information for a **vessel's heating appliances**, where of a fired type, shall be stowed on board, and shall as a minimum set out and include the following:

    .1 **heating appliance** manual;

    .2 instructions for turning off **heating appliance** fuel supply if a manual valve is fitted;

    .3 instructions to ensure the **heating appliance's** cool down cycle is not interrupted;

    .4 instructions for refuelling and type of fuel used;

    .5 specify required service intervals; and

    .6 instructions on action to be taken in the event of carbon monoxide alarm being initiated.

2. As a minimum the following information shall be clearly displayed in the immediate vicinity of the appliance(s):

    .1 **heating appliance** exhaust components may be hot during and directly after **heating appliance** operation;

    .2 information stating that all exhaust outlets are not obstructed while **heating appliance** is in operation;

    .3 the air temperature at **heating appliance** outlet may be hot; and

    .4 ensure all **heating appliance** outlets or intakes are kept clear during **heating appliance** operation.

APPENDIX 3
STABILITY INFORMATION BOOKLET CONTENTS

Further information on Stability Information Booklets is available in **MIN** 724.

The **Certifying Authority** may accept a Stability information Booklet that does not include a GZ curve and GZ-based stability analysis for each example loading condition in the following circumstances:

.1 where limiting KG curves or data is provided, including instructions on their use; and

.2 where the **vessel** is of an acceptable type (e.g. pontoon barges with no below deck tankage or loadable spaces; propelled **vessels** with limited loading options; or **dedicated pilot boat**).

In such cases it shall be acceptable to provide data on all deadweight items, locations and free surface moments etc. used in the loading condition to:

.1 calculate the final draught trim and heel;

.2 demonstrate the condition is compliant with the limiting KG requirements;

.3 demonstrate the size of margin required; and

.4 ensure crane conditions shall be compliant with KG requirements (upright) and the resulting heel angle and minimum **freeboard**.

Section	Schedule of Contents	General Notes	
		Front Cover	
		Name of **vessel**	It shall cover all essential items to assess the provenance and applicability of the SIB
		Intact Stability Information Booklet (or intact and damaged, if applicable)	
		Date of issue	
		Version number	
		Name and address of Naval Architect	
		Contents	
		Contents with page numbers	Reports without page numbers shall not be accepted
		General Particulars	
		Vessel's name	General particulars to confirm applicability of the book to the **vessel**, assess the operational envelope and identify responsible
		Official number	
		Port of registry	
		Certifying Authority	
		Number of persons carried	
		Maximum weight of **cargo**	
		Area category of operation	
		Name and address of owners	

	Class	persons in the build and operation.
	Material of construction	
	Yard number	
	Builder's name and address	
	Fitted out by (if different)	
	Date of build	
	Date of commissioning	
	Dimensions	
	Length overall	
	Length BP	
	Moulded beam	
	Depth	
	Rake of keel	
	Displacements: fully laden, lightship	
	Draughts: fully laden, lightship	
	Minimum **freeboard**: lightship **freeboard**	
	Gross and net tonnage	
	Nomenclature/abbreviations/glossary	Desirable but not essential if definitions are included
	General arrangement	
	Profile drawing – including definition of FP, AP, midships, base line (when not included above), protocol for positive and negative trims	Datums used throughout shall be clearly indicated
	Plan drawing. Downflooding openings can be included here or in another section	
	Arrangement of tanks and ballast	
	Plan and profile views showing tank positions and position of any permanent ballast. May be included in general arrangement or tank usage sections	
	Arrangement of sections	
	An explanation of how the booklet is arranged	Booklet arranged in sections so that the most essential matters are brought to the user's attention first. The criteria against which stability is assessed shall be referenced
	Section 1 – operational/stability information	
	Section 2 – technical data and loading conditions	
	Section 3 – reference information including lightship and VCG derivation	
	Basic information: name and version number of stability software used; responsible agent/agency for carrying out the inclining experiment (or VCG weight estimate in the	

	case of some multihulls) and supplying the dimensions/drawings for modelling	
	Section 1 – Stability information	
1.1	Notes regarding the stability of the ship, including the intact (and damaged, if applicable) standard code reference criteria i.e. 12B.3.8 or 12B.3.9	
	Example of static stability curve with details of Area A, Area B, Area C, Point of X, Maximum GZ and Initial GM	
	Pass or fail status of the **vessel** and where 12B.3.9 is used as an alternative criteria	
1.2	General instructions for the **Master**: Keeping a copy of the SIB on board and in date; loading conditions not to be exceeded; **freeboard** marks not to be immersed; records of minor **modifications**	Any **modifications**, minor or otherwise, shall be advised to the **Certifying Authority**. If necessary a SIB addendum to the approved SIB can be issued
1.3	Tank usage and free surface moments and effect on stability (where not included above)	
1.4	General precautions against capsizing and downflooding: **area category of operation**, stability criteria, weather, reference to location of downflooding openings	
1.5	**Cargo** condition summary, maximum load, height and position. Reference to limiting KG data for non-standard conditions	
1.6	Sample load condition table and instructions for use	
1.7	Maximum VCG (KG) curve/table with appropriate range of displacement and trim and instructions for use. Example showing the use of the maximum KG curve and trim calculation	Blank calculation page(s) are recommended. Other copies can be made
1.8	Statement on maximum crane load (kg) and maximum outreach (m), if applicable, and any other relevant advice regarding crane operation, such as the provision and use of an inclinometer	
1.9	GZ curve – condition 1, fully laden departure including **critical downflooding angle**. Data including DISP, draft FP, draft AP	GZ curve may be omitted from load the condition where KG curves/data and instructions for their

		use. It is desirable but not essential to include WSA, WPA, LCB, VCB, GZ, LCF, TCF TCP against heel angle 0 to 90 degrees
	GZ data and assessment against criteria – condition 1	
	Stability summary detailing required criteria, achieved criteria, margin and pass/fail for following	Or as modified by the alternative criteria followed (e.g. 11.6.7 of **MGN** 280)
	Area 0° to 30°	
	Area 0° to 40° or downflooding angle	
	Area 30° to 40° or downflooding angle	
	GZ at 30° or greater	
	Angle at GZ max	
	GM	
	Downflooding angle	
1.10	GZ curve – condition 2 – arrival 10% consumables including **critical downflooding angle**. Data including DISP, draft FP, draft AP	GZ curve may be omitted from loading condition where KG curves/data and instructions for their use is included. It is desirable but not essential to include WSA, WPA, LCB, VCB, GZ, LCF, TCF, TCP against heel angle 0 to 90°
	Stability summary, detailing required criteria, achieved criteria, margin and pass/fail for following	Or as modified by the alternative criteria followed (e.g. 11.6.7 of **MGN** 280)
	Area 0° to 30°	
	Area 0° to 40° or downflooding angle	
	Area 30° to 40° or downflooding angle	
	GZ at 30° or greater	
	Angle at GZ max	
	GM	
	Downflooding angle	

1.11	GZ curve, GZ data and assessments against criteria for any other relevant load condition, for instance different load/**passenger** combinations. Limiting conditions which define the operational envelope shall be included. Operational conditions including any crane usage and a condition showing the maximum deck **cargo**	
	Summary of pass/fail margins and stability category for each load condition	
1.12	**Freeboard** and draught marks	
	Depth from baseline to top of deck at midships (m)	
	Maximum fully laden draught at midships (m)	
	Minimum **freeboard** at midships (m)	
	Position of midships (metres aft of foreside of stem at deck level)	
	Diagram showing location and dimensions of **freeboard** mark	
	Where **freeboard** must be calculated by reference to the Merchant Shipping (Load Line) Regulations 1998 (SI 1998 No. 2241), **as amended**, the calculation summary shall be either included here or in an appendix and referenced here	
Section 2 – Technical data and loading conditions		
2.1	Draught marks and hydrostatic datum	
	Drawing identifying draught marks and datum	
	Determination of draughts at AP and FP relative to baseline from draughts read at marks	
2.2	Angles of deck edge immersion and downflooding	
	Drawing identifying downflooding openings	
	Table listing each downflooding point, the area of each opening, the angle of immersion in each loadcase	
2.3	Arrangement of tanks and ballast	
	Drawing showing tanks and ballast fitted	
	Table listing tank capacities, soundings, fluid, location, weight, LCG, VCG, TCG and maximum FSM	
	Notes on the use of free surface moments	
	Include calculation of maximum free surface moment	

	Details of ballast weight and location	
	Reference to baseline, forward perpendicular, transverse origins and positive and negative trim	
2.4	Loading condition – departure 100% consumables	
	Weights and centres table of lightship and deadweight items, referenced to LCG, VCG, TCG and free surface	
	Include draught at AP, draught at FP, mean draught, trim, GM solid, free surface correction GM fluid	
2.5	Loading condition – arrival 10% consumables	
	Weights and centres table of lightship and deadweight items, referenced to LCG, VCG, TCG and free surface	
	Include draught at AP, draught at FP, mean draught, trim, GM solid, free surface correction GM fluid	
	Make-up of all other load conditions which are presented in Section 2 with weights and centres table of lightship and deadweight items, referenced to LCG, VCG, TCG and free surface	
Section 3 – Reference information including lightship and VCG derivation		
3.1	Hydrostatic – trim forward (maximum envisaged in the operational envelope)	
	For an appropriate range of draughts: displacement, LCB, LCF, KB, KMT, KML, TPC, MTC (WPA, WSA, dimensionless coefficients as desired may be included though are not necessary)	
3.2	Hydrostatic data – level trim	
	For an appropriate range of draughts: displacement, LCB, LCF, KB, KMT, KML, TPC, MTC (WPA, WSA, dimensionless coefficients as desired may be included though are not necessary)	
3.3	Hydrostatic data – trim aft (maximum envisaged in the operational envelope)	
	For an appropriate range of draughts: displacement, LCB, LCF, KB, KMT, KML, TPC, MTC (WPA, WSA, dimensionless coefficients as desired may be included though are not necessary)	

3.4	Intermediate trims shall be included where maximum trim is over 0.3m, to enable reasonably accurate interpolations	
3.5	KN data – trim forward (maximum envisaged in the operational envelope)	
	For an appropriate range of displacement vs. appropriate range of heel angle	
3.6	KN data – level trim	
	For an appropriate range displacement vs. appropriate range of heel angle	
3.7	KN data – trim aft (maximum envisaged in the operational envelope)	
	For an appropriate range displacement vs. appropriate range of heel angle	
	Intermediate KN data shall be included where maximum trim is over 0.3m, to enable reasonably accurate interpolations	
3.8	Notes on the use of KN data	
	Insert hull section drawing illustrating the relative positions of K, M, G, GZ and B	
3.9	Inclining experiment report	
	List vessel, type, location, date and time, weather, sea state, SG of water, condition of vessel	
	Tank ullages, persons present, inclining weights, pendulum length(s)	
	Forward and aft draughts, mean draught, trim	
	Lists of weights and centres (VCG, LCG) to come off and go on	
	Inclined displacement derived from draughts and trims	Where lightship particulars of a sister vessel are based on a lightship check the inclining report for the 'lead' sister vessel shall be included in the stability information of the subsequent sister(s)
	List of pendulum readings	
	GM calculation (averaged)	
	Displacement, LCG, KMT, GMT, free surface correction, VCG (KG) in inclined condition	
3.10	Lightship derivation	

	Weights and centres table of items to be removed	
	Weights and centres table of items to be added	
	Weights and centres summary	
3.11	Record of **modifications** to lightship	
3.12	Crane	
	Crane model	
	Crane position	
	Load radius diagram	
	Including **freeboard** and angle of heel at maximum heeling moment, compliance with KG requirement	
	All personnel to be on deck when lifting	
	All principal openings to remain closed when lifting	
	Restriction on lifting over “crane” side	
	Vessel to have no residual heel prior to lift	
	Variation from standard load-radius diagram for crane	
	Any additional load and outreach data that may be relevant particularly if crane off centreline	
3.13	Damaged stability condition	
	Summary of worst damaged **compartment** condition and criteria assessed against, together with pass (or fail) margins and a sketch showing the equilibrium waterline	
	Equilibrium conditions of other damaged **compartment** conditions may also be included if relevant or pass fail margins are similar to the worst condition	
3.14	Beaufort scale of wind speeds and corresponding pressures	
3.15	Metric/imperial conversion	
N/A	Appendix for **freeboard** calculation to Load Line Regulations where required by the Merchant Shipping (Load Line) Regulations 1998 (SI 1998 No. 2241), **as amended**, under Section 13 of the **Code**.	

APPENDIX 4

USE OF ISO "FIRST OF TYPE" RIGHTING MOMENT CURVE FOR STABILITY ASSESSMENT

1. Introduction

1.1 Where the stability of a **vessel** is assessed using the righting moment curve prepared to show compliance of the design with ISO 12217, this curve must be subject to verification and, if necessary, corrected, by the **Certifying Authority** in accordance with Section 2 of this Appendix.

1.2 ISO 12217 normally requires the stability to be assessed in the Minimum Operating Condition. However, where the Loaded Displacement Mass is more than 15% greater than the former, the stability shall also be assessed in the heavier condition.

1.3 Where data is available for both the Minimum Operating Condition and Loaded Displacement Mass (where more than 15% greater than the Minimum Operating Condition); the heavier shall be used for the purposes of this Appendix.

2. Stability Verification Test

2.1 Where subject to the stability verification test, the **vessel** must be loaded, as close as is practicable, to the loading condition required for the righting moment curve (as defined in ISO 12217) to be checked. The purpose of the stability verification test is to verify that the **vessel** is adequately described by the righting moment curve of the "First of Type" used for ISO 12217 assessment. Where this is not adequately demonstrated, this curve shall be corrected as described in 2.2 – 2.7 before reassessment of the stability compliance.

2.2 The stability verification test shall be conducted in calm conditions. The **vessel** shall be heeled to both port and starboard as much as is practicable by the application of a heeling moment sufficient to produce a heel angle of:

.1 at least three degrees in either direction; and

.2 at least five degrees in either direction i.e. in total two heeling moments and four heel angles.

The heeling moments and angles of heel shall be recorded as precisely as is practicable.

2.3 The heeling moments shall be applied using weights that are part of the loaded condition of the **vessel** and moved through a known amount. The righting lever deduced for that angle of heel is given by:

$$GZ = (w.h.\cos\Phi)/(\Delta)$$

Where:

GZ = righting lever (m)

w = mass moved to produce the heel angle (kg)

h = distance parallel to design waterline mass was moved through to produce heeling moment (m)

Φ = angle of heel produced (degrees)

Δ = displacement of vessel as used to derive the GZ curve in question (kg)

2.4 Where weights need to be moved vertically from their normal location in order to generate the necessary heeling moment, the resulting measured righting moment shall be corrected for the change in the **vessel's** vertical centre-of-gravity.

The correction $GG_1 \sin \Phi$ shall be added to the measured GZ when the weights were raised during the heeling test.

GG_1 = the shift in **vessel** vertical centre of gravity due to the weights moved.

2.5 The "First of Type" righting moment curve shall be considered acceptable for stability assessment if the average deviation of the four values (see 2.3) and corrected (see 2.4) below the righting moment curve is equal to, or less than, 5%. If the deviation is above the righting moment curve no limit shall apply.

2.6 Where the average deviation for the four values (see 2.3) above the righting moment curve is more than 5%, the "First of Type" righting moment curve shall be corrected throughout the range of heel angles by an amount equal to $GG_1 \sin \Phi$

Φ = any heel angle

The value of GG_1 used for this correction shall be obtained as follows:

$$GG\_1 = \{(\delta\_1/\sin\Phi 1) + (\delta\_2/\sin\Phi 2) + (\delta\_3/\sin\Phi 3) + (\delta\_4/\sin\Phi 4)\}/4$$

δ_n = difference in measured GZ from "First of Type" GZ curve at angle Φ_n for the four values obtained and calculated (see 2.2– 2.4).

2.7 Where the righting moment curve is modified according to 2.1 – 2.6 the **vessel's** stability shall be reassessed in accordance with the requirements of Section 12.

APPENDIX 5

SAFE MANNING

1. General

1.1 **Vessels** to which this **Code** applies and which comply with its requirements, will be exempt from the need to comply fully with The Merchant Shipping (Standards of Training, Certification and Watchkeeping) Regulations 2022 **as amended**, and the Merchant Shipping (Safe Manning, Hours of Work and Watchkeeping) Regulations 1997, **as amended**, provided the manning of the **vessel** is in accordance with the standards and **area categories of operation** given in sections 3.10 and 28.1 of this **Code**.

2. Minimum Manning and Qualification Requirements

2.1 The minimum manning and qualifications requirements for personnel working in deck capacities are indicated in Table A5.1 Minimum Deck Manning Requirements.

2.2 The minimum manning and qualifications requirements for personnel working in engineering capacities are indicated in Table A5.2 Minimum Engineering Manning Requirements.

2.3 Where table A5.2 indicates a requirement for personnel to complete an RYA Diesel Engine Course on **sailing vessels** in **Area Category of Operation** 1 or 0, **crew** serving on **existing vessels** certificated under Yellow Code, Blue Code or Red Code will alternatively be considered to meet this requirement providing they:

.1 have relevant experience of fulfilling a vessel's engineering requirements on an **existing vessel** certificated under Yellow Code, Blue Code, or Red Code at an equivalent level to the RYA Diesel Engine Course syllabus, and;

.2 The crew member can evidence this experience if called upon by the **Master**, **Owner/Operator** or the **Administration**.

3. Mandatory Training Courses

3.1 Mandatory training courses are set out in Table A5.3.

4. Training for Lithium-ion Batteries and Lead-acid Batteries used as a Source of Power for Propulsion

4.1 Training requirements for the safe operation of **lithium-ion batteries** and **lead-acid batteries** used as a source of power for propulsion shall be detailed in the **vessel's** operating manual and shall cover, at a minimum:

.1 normal operation;

.2 maintenance; and

.3 how to rectify common faults and issues.

Table A5.1 – Minimum Deck Manning Requirements

	Area Category of Operation		6	5	4	3	2	1	0
MASTER QUALIFICATION ACCEPTABLE FOR GIVEN **AREA CATEGORY OF OPERATION** (Note 1,2,3,4)	STCW **Master** (**Workboat** less than 500 GT unlimited area)	Note G	√	√	√	√	√	√	√
	STCW **Master** (Code Vessels less than 200 GT unlimited area)	Note E	√	√	√	√	√	√	√
	RYA/**MCA** Yachtmaster Ocean Certificate of Competence	Note A	√	√	√	√	√	√	√
	STCW **Master** (Code Vessels less than 200 GT limited to 150 **miles** from a **safe haven**) **Certificate of Competency**.	Note E	√	√	√	√	√	√	
	RYA/**MCA** Yachtmaster Offshore Certificate of Competence	Note A	√	√	√	√	√	√	
	MCA Boatmasters' Licence	Note B	√	√	√	√			
	RYA/**MCA** Yachtmaster Coastal Certificate of Competence	Note A	√	√	√	√			
	RYA/**MCA** Powerboat Advanced Certificate of Competence	Note F Note A	√	√	√	√			
	RYA/**MCA** Powerboat Advanced Practical Certificate (only if issued before 1st January 2005)	Note F Note A	√	√	√	√			
	Certificate of Competency for appropriate area issued by **Competent Authority**	Note A Note C	√	√	√	√			
	RYA/**MCA** Powerboat Level 2	12 months relevant experience Note H	√						
	RYA/**MCA** Day **Skipper** Theory & Practical Certificate (**Daylight** Operation Only)	Note A	√		√				
	Local Authority Licence for appropriate area	Note A Note D	√						
ADDITIONAL REQUIREMENTS (Note 1, 2,3,4)	There shall also be on board a second person deemed by the **Master** to be experienced and competent. Where a **vessel** operates in a **single-handed** mode with no second person on board, there is no requirement for a second person to be carried. Where a **vessel** operates in a **single-handed** mode with **passengers** on board, a second person, which may be a **trainee** or an appointed **passenger** deemed competent and briefed by the **Master**, capable of assisting the **Master** in an emergency should also be on board.		√	√	√	√			
	There shall also be on board a second person deemed competent and briefed by the **Master** (which may be a **trainee** or **passenger**), who is familiar with the **vessel's** equipment and operation, with appropriate ability to operate the **vessel** safely in the sea-state, weather, and light conditions likely to be encountered during the voyage.						√		
	There shall also be on board a second person holding at least an RYA/MCA Certificate of Competence as Yachtmaster Coastal.							√	
	There shall also be on board another person holding at least an RYA/MCA Certificate of Competence as either Yachtmaster Offshore, STCW **Master** (Code Vessels less than 200 GT limited to 150 **miles** from a **safe haven**), Yachtmaster Ocean or STCW **Master** (Code Vessels less than 200 GT unlimited)								√

Note 1	Qualifications differing from those tabled, but of equal standing or specialist application will be considered by the **Administration**. **MGN** 411[81], **as amended** provides accepted alternatives.
Note 2	**Vessels** regularly engaged on near coastal voyages from ports outside the UK, have to abide by the manning requirements of the **Administration** regulating that coastal area.
Note 3	RYA certificates of competence and/or service shall carry a commercial endorsement. To receive such a commercial endorsement, holders of RYA certificates of competence shall refer to the RYA for additional requirements. (See **MIN** 724).
Note 4	Relevant experience of the type and size of vessel, the machinery on the vessel, and the type of operation in which the vessel is engaged.
Note A	This qualification shall be undertaken in Sail or Power/**motor vessels.** Certificate holders must ensure they hold the appropriate type for the vessel in use. Where the vessel is used in accordance with 25.7 (High Speed and Planing Mode Operations) the **Master** shall ensure they are able to meet the requirements of 25.7.8.
Note B	Holders of **MCA** Boatmaster's Licences are accepted for use on vessels operating under this **Code**, limited to the area of the licence and any endorsements on it. Such licences must be re-validated as appropriate. Refer to MSN 1853(M)[82], **as amended**.
Note C	**Competent Authority** in respect of manning requirements means either the **Administration** or an organisation that issues **Certificates of Competency** which has applied for and granted recognition by the **Administration** as having the appropriate technical and administrative expertise.
Note D	Local Authority Licence - only those Local Authorities that have the approval of the **Administration** may issue Licences under this **Code**.
Note E	Only valid for use on **vessels up to** 200 GT, and under this **Code** this restriction is further limited to **vessels** to which this **Code** is applicable. **MCA** qualification, for details refer to MSN 1858 (M+F)[83] **as amended.**
Note F	Where the **vessel** is used in accordance with 25.5 (Towing) or 25.7 (High Speed and Planing Mode Operations), the **Master** must have a minimum of an RYA/**MCA** Advanced Powerboat Certificate and suitable experience of relevant operation and ensure they are able to meet the requirements of 25.7.8.
Note G	**MCA** qualification, for details refer to **MGN** 496[84] (or subsequent amendment).
Note H	RYA/**MCA** Powerboat Level 2 Certificate is only valid for use on **open boats**, **rigid inflatable boats**, **inflatable boats**, **boats fitted with a buoyant collar** of less than 10m in **length** operating in **area category of operation** 6. Where the vessel is used in accordance with 25.7 (High Speed and Planing Mode Operations) the **Master** shall ensure they are able to meet the requirements of 25.7.8.

[81] MGN 411 Certification requirements for crew of fishing vessels, small commercial vessels and large yachts, **as amended.**
[82] MSN 1853 (M): Boatmasters' Qualifications, Crew and Hours of Work, **as amended.**
[83] MSN 1858 Requirements for deck officers on large yachts over 24m, **as amended.**
[84] MGN 496 Certificate of competency for master workboat deck, **as amended.**

Table A5.2 – Minimum Engineering Manning Requirements

Area Category of Operation Note 1, 5, 10	**6-3**	**2**	**1**	**0**
RYA Diesel Engine Course or satisfied the **Administration** as to their appropriate engineering experience and competency	Note 5	Note 5	Sail Vessel	Sail Vessel
Approved Engine Course (Part 1) or satisfied the **Administration** as to their appropriate engineering experience and competency Note 2, 3, 4	Note 5	Power Vessel W Note 6	Power Vessel SL Note 7	Power Vessel SL Note 7
Marine Engine Operators Licence (MEOL) or other equivalent certification including STCW III/4 Engine Ratings or AEC (Part 1 and 2) Note 6, 7	Note 5	Note 5	Power Vessel W	Power Vessel W <1500 kW
Senior Marine Engine Operators Licence (SMEOL), STCW C/Eng (Y4) / Note 9, 7	Note 5	Note 5	Note 5	Power Vessel W >=1500 kW < 3000 kW
Small Vessel Second Engineer **Certificate of Competency** Note 9,7	Note 5	Note 5	Note 5	Power Vessel W >=1500 kW < 3000 kW

Note 1 Qualifications differing from those tabled, but of equal standing or specialist application may be considered by the **Administration**.

Note 2 The person holding the engineering requirement may be a **crew** member listed in Table A5.1.

Note 3 Persons who are able to demonstrate to the satisfaction of the **Administration** that they have the appropriate engineering experience and competency may be granted exemption from the requirement to attend an **Approved** Engine Course. The syllabus for these courses are published on the www.gov.uk website.

Note 4 In addition to Note 3, it is strongly recommended that for **vessels** where there is installed propulsion power greater than 1500 kW or the **vessel** is fitted with equipment, essential to its operation, that is not included in the syllabus of the engineering qualification held, an applicable manufacturer's, or equivalent, course shall be attended.

Note 5 In all cases, one of the **crew** shall be sufficiently familiar with the operation and maintenance of the **vessel's** machinery to ensure safe passage.

Note 6 Power Vessel W is a Power Vessel employed in **towing** operations, lifting operations or carriage of **cargo** greater than 1000 kg.

Note 7 Power Vessel SL is a Power Vessel other than Power Vessel designated by Power Vessel W.

Note 8 Over 3,000 kW and less than 6,000 kW registered propulsion power: the certificate holder is also required to have attended an **approved** engine manufacturer's course appropriate to the engine type and power range.

Note 9 MEOL / SMEOL applies to less than 750 kW registered power vessels of 24 m or more in **Load Line length**, in the case of **small vessels** <24 m **Load Line length**, this qualification can be used on more than 750 kW registered power vessels shown above.

Note 10 The **vessel owner/operator** shall consider the risk of power sources and ensure that the **crew** are appropriately trained.

Note 11 Where **crew** serving on **existing vessels** under Yellow Code, Blue Code or Red Code have relevant experience of fulfilling a vessel's engineering requirements under those Codes at an equivalent level to the RYA Diesel Engine Course syllabus, and either the **vessel's Master** or **owner/operator** can attest to or evidence this experience if called upon by the **Administration**, these **crew** members do not need to undertake the RYA Diesel Course when the **existing vessel** transitions to this **Code.**

Table A5.3 – Mandatory training courses requirements

Mandatory Training Course	Application	Requirements
Personal Survival Techniques or RYA Basic Sea Survival	All **vessels**	All **crew** following an STCW **Certificate of Competency** route shall complete an **MCA approved** Personal Survival Techniques course. All **crew** following an alternative certification route accepted under this **Code** shall complete RYA Basic Sea Survival or may complete an **MCA approved** Personal Survival Techniques course.
First Aid Training	**MLC** compliant **vessels** Non-**MLC vessels** operating in **area category of operation** 0 or 1	Minimum one person on board who is in charge of medical care and administering medicine as part of their regular duties or minimum one person on board competent to provide medical first aid and hold the relevant STCW certificate. **Master** shall hold Proficiency in Medical Care Certificate unless another member of the **crew** holds a medical or nursing qualification of an equivalent or a higher standard.
	Non-**MLC** vessels operating in **area category of operation** 2, 3, 4, 5 or 6	Minimum one person on board shall hold **MCA approved** Elementary First Aid Certificate (or the First Aid at Sea Certificate or Medical First Aid Certificate), or an RYA First Aid Certificate, or a SeaFish Basic First Aid Certificate, provided the use of Category 'C' **medical stores** is covered in the course)
Fire Fighting Training	**Vessels** up to 15m in length	**Master** or at least one **crew** member shall complete an MCA approved one day fire fighting course; an STCW Fire Prevention and Fire Fighting course, or an MCA approved or recognised training course as may be listed in **MIN** 724.
	Vessels 15m in length or over	**Master** and at least one **crew** member shall complete an MCA approved one day fire fighting course; an STCW Fire Prevention and Fire Fighting course, or an MCA approved or recognised training course as may be listed in **MIN** 724.
Radar Training	**Vessels** carrying radar	Where a **vessel** operating in **area category of operation** 0, 1 or 2 is required to be equipped with a radar by section 19.7 of this **Code**, the **Master** and all **crew** responsible for a Navigational Watch shall complete an **MCA approved** or recognised radar training course listed in **MIN** 724.
Stability Training	**Vessels** required to be provided with a Stability Information Booklet	At least **Master** shall have completed an **MCA approved** stability course no later than 5 years after the date of entry into force of this **Code**.
Electronic Chart Systems Training	**Vessels** carrying Electronic Chart Systems	Where a vessel is equipped with an Electronic Chart System approved as meeting the standards of **MGN** 319, as amended, the **Master** and all **crew** responsible for a navigational watch shall complete the Electronic Chart Systems and Bridge Watchkeeping module of an **MCA approved** Small Ships Navigation and Radar course, or an **MCA approved** or recognised training course listed in **MIN** 724.
Training for Navigation Equipment in Excess of Code Requirements	Where navigation equipment is carried in excess of the **Code** requirements	Any **crew** likely to use the equipment shall undertake appropriate training in the use of that equipment. e.g. ECDIS.
Catering Training	Where appropriate	All **crew** responsible for the processing or preparation of food for **passengers** or non-crew members shall undertake a 'Basic Food Hygiene' or 'Food Safety' course, level 2. All other persons on board, including **trainees,** engaged in the preparation of food for **passengers** or non-crew members without the direct supervision of a 'Basic Food Hygiene' or Food Safety Course, Level 2 certificate holder, shall complete a 'Basic Food Hygiene' or 'Food Safety' course Level 2.

APPENDIX 6

OIL POLLUTION PREVENTION

1. Special Areas (Annex I of MARPOL, Regulation 1)

1.1 For the purposes of this Appendix, the **special areas** are defined as follows:

.1 the Mediterranean Sea area means the Mediterranean Sea proper including the gulfs and seas therein with the boundary between the Mediterranean and the Black Sea constituted by the 41° N parallel and bounded to the west by the Straits of Gibraltar at the meridian of 5°36' W;

.2 the Baltic Sea area means the Baltic Sea proper with the Gulf of Bothnia, the Gulf of Finland and the entrance to the Baltic Sea bounded by the parallel of the Skaw in the Skagerrak at 57°44.8' N;

.3 the Black Sea area means the Black Sea proper with the boundary between the Mediterranean Sea and the Black Sea constituted by the parallel 41° N;

.4 the Red Sea area means the Red Sea proper including the Gulfs of Suez and Aqaba bounded at the south by the rhumb line between Ras si Ane (12°28.5' N, 43°19.6' E) and Husn Murad (12°40.4' N, 43°30.2' E);

.5 the Gulfs area means the sea area located north-west of the rhumb line between Ras al Hadd (22°30' N, 59°48' E) and Ras al Fasteh (25°04' N, 61° 25' E);

.6 the Gulf of Aden area means that part of the Gulf of Aden between the Red Sea and the Arabian Sea bounded to the west by the rhumb line between Ras si Ane (12°28.5'N, 43°19.6' E) and Husn Murad (12°40.4' N, 43°30.2' E) and to the east by the rhumb line between Ras Asir (11°50' N, 51°16.9' E) and the Ras Fartak (15°35' N, 52°13.8' E);

.7 the **Antarctic area** means the sea area south of latitude 60°S;

.8 the North West European waters include the North Sea and its approaches, the Irish Sea and its approaches, the Celtic Sea, the English Channel and its approaches and part of the North East Atlantic immediately to the west of Ireland. The area is bounded by lines joining the following points:

48° 27' N on the French coast

48° 27' N; 6° 25' W

49° 52' N; 7° 44' W

50° 30' N; 12° W

56° 30' N; 12° W

62° N; 3° W

62° N on the Norwegian coast

57° 44.8' N on the Danish and Swedish coasts.

.9 The Oman area of the Arabian Sea means the sea area enclosed by the following co-ordinates:

23°50.897' N 60°50.261' E

21°50.009' N 63°27.044' E

17°52.188' N 61°10.207' E

14°22.727' N 57°22.670' E

15°46.062' N 54°10.143' E

16°38.619' N 53°15.882' E. (Reg 1.11)

.10 The Southern South African waters means the sea area enclosed by the following co-ordinates:

31°14’ S; 017°50’ E

31°30’ S; 017°12’ E

32°00’ S; 017°06’ E

32°32’ S; 016°52’ E

34°06’;S 017°24’ E

36°58’ S; 020°54’ E

36°00’ S; 022°30’ E

35°14’ S; 022°54’ E

34°30’ S; 026°00’ E

33°48’ S; 027°25’ E

33°27’ S; 027°12’ E

2. Exceptions (Annex I of MARPOL, Regulation 4)

2.1 Requirements detailed in Section 4 Control of Discharge of Oil of this Appendix shall not apply to:

.1 the discharge into the sea of oil or oily mixture necessary for the purpose of securing the safety of a **ship** or saving life **at sea**; or

.2 the discharge into the sea of oil or oily mixture resulting from damage to a **ship** or its equipment:

.1 provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimising the discharge; and

.2 except if the owner or the **Master** acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result; or

.3 the discharge into the sea of substances containing oil, **approved** by the **Administration**, when being used for the purpose of combating specific pollution incidents in order to minimize the damage from pollution. Any such discharge shall be subject to the approval of any Government in whose jurisdiction it is contemplated the discharge will occur.

APPENDIX 7

SAFETY MANAGEMENT SYSTEM

The purpose of this Appendix is to provide guidance on how to develop and implement an appropriate and proportionate Safety Management System for small vessels in commercial use for sport or pleasure based on the requirements that can be found in this Appendix.

1. General

1.1 A Safety Management System shall include the following:

.1 Health and Safety and Environmental Protection Policy;

.2 Risk Assessments for safe working for all operations;

.3 Roles and Responsibilities;

.4 Training and qualifications of personnel;

.5 **Vessel** standard operating procedures;

.6 **Vessel** emergency procedures;

.7 Reporting of accidents;

.8 Maintenance of the **vessel** and equipment;

.9 Cyber security measures; and

.9 Review and continuous improvement.

2. Health and Safety and Environmental Protection Policy

2.1 The **vessel owner/operator** shall produce a Health and Safety Protection Policy. It is the responsibility of the **vessel owner/operator** to ensure that the policy is complied with, and that the responsibilities are understood.

2.2 A Health, Safety and Environmental Protection Policy must address the issues of:

.1 health;

.2 safety;

.3 working environment; and

.4 the environment

as they affect the company and its staff, both on shore and on board.

2.3 An appointed person within the organisation, which may be the **owner/operator**, shall take responsibility for health and safety matters, and that person(s) shall be clearly identifiable to all personnel.

2.4 The **vessel owner/operator** shall develop and uphold a policy on prevention of alcohol and drug abuse.

3. Risk Assessment(s) for Safe Working for all Operations

3.1 The **vessel owner/operator** shall produce an effective risk assessment(s) which shall identify risks to personnel, **vessels** and the environment.[85] The outcomes from the risk assessment(s) shall inform the development of safe systems of work.

3.2 The Safety Management System shall include risk assessments for all applicable elements of the **Code** and a statement that confirms the sections of the **Code** requiring reference to the Safety Management System have been included.

4. Roles and Responsibilities

4.1 Clear lines of responsibility and authority shall be established for all personnel.

4.2 Master

4.2.1 The **Master** must have overriding authority at all times to make decisions with regard to the safety of the **vessel** and the persons on board. There shall be a written statement confirming the authority of the **Master**.

4.2.2 The **Master** shall implement the safety management system on board the **vessel**.

4.3 Crew

4.3.1 All personnel have a duty to take care of themselves and any other persons who may be affected by their acts or omissions.

4.4 Owner/Operator

4.4.1 The **vessel owner/operator** should define and document the responsibility, authority and interrelation of all **Master(s)** and **crew** who undertake work relating to and affecting safety and pollution prevention.

4.4.2 Where applicable the **vessel owner/operator** is responsible for ensuring that adequate resources and shore-based support are provided to enable the designated person or persons to carry out their functions.

4.4.3 The **vessel owner/operator** should ensure that the safety management system operating on board the **vessel** contains a clear statement emphasizing the **Master's** authority and establish in the safety management system that the **Master** has the overriding authority and the responsibility to make decisions with respect to safety and pollution prevention and to request the **owner/operator's** assistance as may be necessary.

4.5 Charterers – Bareboat Charter

4.5.1 The **owner/operator** of a **vessel** operating on **bareboat charter** shall meet the safety management system requirements set out in this Appendix.

4.5.2 The **charterers** of a **vessel** on **bareboat charter** are not subject to the requirements

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[85] Further guidance can be found in Chapter 1, Code of safe working practices for merchant seafarers (COSWP)

of sections 9 - 11 of this Appendix, or any other requirements otherwise exempted by sections of the **Code**.

4.6 Charterers – Skippered Charter

4.6.1 The **owner/operator** of a **vessel** operating on skippered charter shall meet the safety management system requirements set out in this Appendix.

4.6.2 The **charterers** of a **vessel** on a skippered charter are not subject to the requirements of sections 9 - 11 of this Appendix, or any other requirements otherwise exempted by sections of the **Code**.

4.7 Person Ashore

4.7.1 The **vessel owner/operator** shall, in relation to each **vessel** owned by it or for which it has operational responsibility, designate a person ashore who shall be responsible for implementing the shoreside emergency plan.

4.7.2 The person ashore shall be someone deemed competent to meet the requirements of 4.7.4 by the **vessel owner/operator** and may include a colleague, family member or friend.

4.7.3 The **vessel owner/operator** shall develop a shoreside emergency plan. The shoreside emergency plan must include all information necessary to enable the person ashore to meet the requirements of 4.7.4.3.

4.7.4 The person ashore:

.1 must be provided with, and be familiar with the shoreside emergency plan;

.2 must have adequate knowledge and resources to be able to implement the shoreside emergency plan;

.3 is required to liaise with the **Master**, shore-based authorities and emergency services in event of an emergency.

4.7.5 The **vessel owner/operator** shall communicate with the designated person ashore at agreed intervals.

5. Training and Qualifications of Personnel

5.1 All personnel shall receive training and familiarisation appropriate to the tasks they undertake. See Section 28. It is the responsibility of the **vessel owner/operator** to ensure that this training is given, and that the personnel have an understanding of the relevant regulations and rules.

5.2 Prior to the first occasion of working on the **vessel**, each employee must receive appropriate familiarisation training and proper instruction in on board procedures. This shall at the minimum include:

.1 emergency drills and MOB recovery (see Section 14.7);

.2 mooring and unmooring;

.3 launching and recovery of survival craft (see also Sections 14.2 and 14.8);

.3 evacuation from all areas of the **vessel** (see also 7 Vessel Emergency Procedures);

.4 donning of lifejackets (see also section 14.4); and

.5 use and handling of fire-fighting equipment (see also section 16).

6. Vessel Standard Operating Procedures

6.1 Procedures shall be developed and documented for the operation of the **vessel**. These shall at the minimum include:

.1 testing of equipment, including steering gear, prior to commencing a passage;

.2 navigation and handling of the **vessel**;

.3 maintenance routines;

.4 refueling operations;

.5 **watertight/weathertight** integrity;

.6 stability of the **vessel**;

.7 conduct of **passengers** and **crew** while on board; and

.8 emergency **towing**.

6.2 Safety Briefing

6.2.1 Before commencing any voyage the **Master** shall ensure that all persons on board are briefed, as a minimum on the:

.1 stowage and use of personal safety equipment such as lifejackets, thermal protective aids and lifebuoys; and

.2 procedures to be followed in emergencies.

6.2.2 In addition to the requirements of 6.2.1 the **Master** shall brief at least one other person on board on the following:

.1 location of liferafts and the method of launching;

.2 procedures for the recovery of a person from the sea;

.3 location and use of pyrotechnics;

.4 procedures and operation of radios carried on board;

.5 location of navigation and other light switches;

.6 location and use of firefighting equipment;

.7 method of starting, stopping and controlling the main engine;

.8 method of navigating to a suitable port of refuge; and

.9 location of Stability Guidance Booklet and Stability Information Booklet, where applicable.

Safety cards are considered to be an acceptable way of providing the above information.

7. Vessel Emergency Procedures

7.1 Clear procedures for responding to emergency situations shall be understood by all personnel, and shall at the minimum include:

.1 fire;

.2 flooding;

.3 collision;

.4 grounding;

.5 violent act;

.6 main propulsion or steering failure;

.7 man overboard;

.8 abandon **ship**;

.9 medical emergency;

.10 aid to other vessels; and

.11 enclosed space rescue if applicable.

7.2 The roles and responsibilities of all personnel in an emergency situation shall be clearly defined.

7.3 All **vessels** shall be equipped with a continuously available communication system (including during emergency situations) which shall enable communication with the emergency services via a shore base. A shore base may be the company office ashore, the local Coastguard, Police or Fire Station, or another office as may be agreed between the **vessel** and the shore base.

7.4 Emergency situations likely to be encountered by the **vessel** shall be considered by the **vessel owner/operator**.

7.5 Exercises shall be carried out in the handling of the identified emergency situations and evacuation from the **vessel**. The exercises shall be recorded. The names of those who participated shall also be recorded.

7.6 Where possible, all personnel shall be involved in these exercises, both on shore and on board.

8. Reporting of Accidents

8.1 A clear procedure for reporting of accidents shall be understood by all personnel.

8.2 The **vessel owner/operator** shall report any accidents to the **Administration** and the company must therefore have a procedure in place. See section 3 and **MIN** 724.

8.3 All accidents, incidents and near-misses shall be recorded and reported to the **vessel owner/operator** who shall implement corrective action.

9. Maintenance of the Vessel and Equipment

9.1 A **vessel** and its equipment shall be maintained in accordance with the requirements of section 3.5.

9.2 The **vessel owner/operator** shall develop documented procedures for a detailed inspection and maintenance programme for the **vessel** and its equipment. The frequency of the required inspection and maintenance shall be determined by the **vessel owner/operator**. All inspections and maintenance activities shall be recorded.

10. Cyber Security Measures

10.1 A **vessel owner/operator** shall implement cyber security measures to protect the **vessel** and **crew** from risks associated with cyber-attacks.

10.2 The required extent of cyber security measures shall be commensurate with the size and complexity of the **vessel**, and shall be determined by the **vessel owner/operator** and shall made available for review by the **Certifying Authority**.

Cyber security measures shall include at a minimum the following[86, 87]:

.1 identification of the systems, assets, data and capabilities which would impact **vessel** operations if disrupted;

.2 established roles and responsibilities of those managing cyber-risks;

.3 measures to minimise risks and defend against cyber-attacks;

.4 means to successfully detect a cyber-attack in a timely manner;

.5 resilient means to restore key systems;

.6 means to ensure critical back-up systems maintain functionality during a cyber-attack;

.7 measures to successfully back-up and restore critical systems following a cyber-attack.

10.3 A **vessel owner/operator** shall carry out a cyber-security risk assessment which shall at a minimum include the following:

.1 IT (information technology) systems;

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[86] MSC.428(98) Maritime Cyber Risk Management in Safety Management Systems.

[87] Cyber-secure connectivity, interface methods and management are detailed in IEC 61162-420 Maritime navigation and radiocommunication equipment and systems – digital interfaces. Part 420: Multiple talkers and multiple listeners – ship systems interconnection – companion standard requirements and basic companion standards; and IEC 63154 Maritime navigation and radiocommunications equipment and systems – cybersecurity – general requirements, methods of testing and required test results.

.2 OT (operation and control technology) systems;

.3 remotely operable equipment;

.3 communication systems; and

.4 **crew** responsibilities in event of a cyber-attack.

This risk assessment shall be carried out where alterations are made to any of the above, or at least every five years.

10.4 Where a cyber security system identifies an attack or potential risk(s) it shall be alerted at the **control position(s)** or **steering position(s)**.

10.5 An electronic log shall be kept by the **vessel owner/operator** of:

.1 systems which are permitted to be remotely accessed; and

.2 all occurrences of remote access.

10.6 The **vessel owner/operator** shall have a suitable back-up plan which will allow the **vessel** to reach a **safe haven** in a safe and responsible manner or enter a **safe state** following a cyber-attack. Where practicable, back-up files required to resume safe operations following a cyber-attack shall be located on board the **vessel**.

11. Review and Continuous Improvement

11.1 The **vessel owner/operator** shall undertake a review of the safety management system at least once every three years.

11.2 The **vessel owner/operator** shall implement any improvements arising from any accidents, incidents, near-misses or periodic reviews of the safety management system at the earliest opportunity.

12. Application to Owners/Operators of Single-handed Vessels

12.1 The **owner/operator** of **vessels** operating **single-handed** shall produce a Safety Management System that meets the requirements of this Appendix; however, it should be identified where requirements are considered not applicable due to the nature of single-handed operations, and any alternate provisions that may be required.

APPENDIX 9

HANDOVER PROCEDURES FOR OWNERS/MANAGING AGENTS WHO BARE-BOAT CHARTER A VESSEL

1 Familiarisation at Handover

1.1 The **owner/managing agent** or appointed representative with intimate knowledge of the **vessel** should be present at the handover of the **vessel** to the chartering **Master** and **crew** in order to complete, as a minimum, the following familiarisation process:

.1 a demonstration of the stowage of all gear and the method of use of all lifesaving and firefighting appliances on board the **vessel** should be given;

.2 the location and method of operation of all sea cocks and bilge pumps should be explained;

.3 a demonstration to ensure familiarisation with all mechanical, electrical and electronic equipment should be carried out;

.4 details of routine maintenance required for any equipment should be declared;

.5 checks to be carried out on the engine prior to starting, whilst running and after stopping to be demonstrated; and

.6 the method of setting, sheeting and reefing each sail should be shown.

2 Documentation

2.1 The **owner/managing agent** or appointed representative, as detailed in 1. above, should ensure that the Vessel's File is shown to the chartering **Master**. The Vessel's File should contain at least the following:

.1 registration papers;

.2 copies of the insurance policy;

.3 other necessary certificates;

.4 details of permitted operating area;

.5 instruction manuals;

.6 electrical wiring and piping/plumbing diagrams;

.7 inventory of the vessel's equipment;

APPENDIX 8

SKIPPERED CHARTER - SAFETY BRIEFING

1.1 Before a **vessel** is **underway** the **Master** should ensure that all persons on board are briefed, as a minimum, on the:

.1 stowage and use of personal safety equipment such as lifejackets and lifebuoys;

.2 location of the liferaft(s);

.3 location of the first aid kit;

.4 location and use of portable fire extinguishers;

.5 raise an alert following man over board;

.6 mustering; and

.7 procedures to be followed in cases of emergency.

The **Master** should check that all persons on board are able to hear the safety briefing.

The **skipper** shall ask all persons on board if they carry any medication which may need to be used in an emergency.

1.2 The **Master** should also brief at least one other person who will be sailing on the voyage regarding the following:

.1 method of launching the liferaft(s),

.2 procedures for the recovery of a person from the sea,

.3 stowage and use of thermal protective aids,

.3 means of indicating distress,

.4 procedures and operation of radios carried on board,

.5 location of navigation and other light switches,

.6 location and use of fixed firefighting equipment,

.7 method of starting, stopping, and controlling the **propulsion system**,

.8 method of navigating to a suitable port of refuge, and

.9 location of Stability Guidance Booklet, and Stability Information Booklet if applicable.

Safety cards will be considered to be an acceptable way of providing the above information.

Alternative means of conveying the above information based on the needs of all persons on board may be considered on a case-by-case basis to the satisfaction of the **Certifying Authority**.

.8 plan(s) showing the stowage position of all the movable equipment necessary for the safe operation of the **vessel**; and

.9 a list of names and telephone numbers (both in and out of office hours) of persons who may be contacted if the chartering **Master** or the **vessel** is in need of assistance.

2.2 The **owner/managing agent** or appointed representative, as detailed in 1. above, should ensure that the Stability Guidance Booklet, and Stability Information Booklet if applicable, are shown to the chartering **Master**.

2.3 The **Master** chartering the **vessel** should sign an acceptance note after the handover procedure with regard to the inventory, condition of items demonstrated and the amounts of fuel and other consumable items on board which may be chargeable.

3. Procedure on Return of the Vessel to the Owner/Managing Agent

3.1 At the end of the **charter** the **owner/managing agent** or appointed representative together with the chartering **Master** should observe the following procedure:

.1 the chartering **Master** should advise the **owner/managing agent** of any lost or damaged equipment,

.2 the chartering **Master** should advise the **owner/managing agent** of any defects or damage to the **vessel**, and

.3 the **owner/managing agent** should be present to review any matter deemed important:

.1 the above details should be noted on an appropriate form which is to be signed by the **owner/managing agent** or appointed representative and the chartering **Master**; and

.2 alternative means of conveying the above information based on the needs of all persons on board may be considered on a case-by-case basis to the satisfaction of the **Certifying Authority**.

APPENDIX 10

VESSELS INVOLVED IN GROUP WORKING

1 Vessels Operating in Group Working

1.1 This section is intended for use as guidelines for two or more vessels involved in group working operations, including those issued with a **Small Commercial Vessel Certificate** for **up to area category of operation** 4.

1.2 Applications for the acceptance of alternatives must be supported by justifications and be formally made via the **Certifying Authority** to the **Administration** who may consult with local **MCA** Marine Offices.

1.3 Where two or more boats are operating in close proximity under the supervision of a single control and satisfactory communications are provided between all boats and the shore then single man operations may be accepted and the requirement for all boats to carry inflatable liferafts and the other safety equipment required by this **Code** may be waived.

1.4 For the operation as a whole the following safety equipment meeting the standards of this **Code** should be provided:

.1 rescue/retrieval equipment - arrangements will need to be suitable for the overall operation;

.2 a minimum of 2 lifebuoys/ or 2 throwing lines and quoits;

.3 2 red hand flares and 2 orange smoke flares; and

.4 a fixed or portable VHF radio.

.5 other equipment as considered necessary, for the particular operation, by the **Administration**.

1.5 Lifejackets/buoyancy aids are to be worn at all times. For operations where buoyancy aids may be considered more practical, their use may be accepted based on alternatives stated in section 2 above.

1.6 The support or lead vessel(s) should carry onboard the following equipment.

.1 an anchor of sufficient mass for the size of the **vessel** and sufficient cable for the area of operation should be provided.

.2 at least one bilge pump should be provided and on fully **decked vessel**s a bilge alarm should be fitted. On small open or partially **decked vessels** an **efficient** bailing system may be acceptable as equivalent to a bilge pump, at the discretion of the **Administration**.

.3 a fire extinguisher meeting the requirements of section 15.2 of this **Code** should be carried.

1.7 The requirements for other aspects of the **Code** such as construction, **weathertight** integrity, machinery, electrical arrangements, steering gear, intact stability and **freeboard** may be waived by the **Administration** if alternative arrangements suitable for the area and type of operation are provided.

1.8 Charts and nautical publications need not be provided where the area of operation is limited and the person in charge has demonstrated adequate local knowledge.

APPENDIX 11

Fire Test for FRP

1 Heat Source

The heat source for the fire test should be provided by a Butane or Propane fuelled Bunsen or Tirril burner with a nominal 9.525 mm (3/8 inch) inside diameter tube adjusted to give a pre-mixed air/gas flame of 38.1 mm (1 ½ inch) length. The minimum temperature measured in the centre of the flame with a calibrated thermocouple pyrometer must be 843.33°C (1550°F).

2 Specimen

The specimen should be 500 mm x 500 mm. The edges of the specimen should be housed in a steel frame sufficiently to prevent them from igniting during the test. The specimen should be cured for at least 7 days at ambient temperature or 1 day at ambient temperature and 16 hours at 40°C before testing. The lay-up of the panel should be representative of the structure being considered.

3 Test Procedures

The specimen should be oriented vertically in a draft free location. The flame should impinge on the centre of the specimen with the flame normal to its surface. The surface of the specimen affected by the fire risk should be exposed to the flame at a set distance of 19.1 mm (3/4 inch) from the end of the burner tube. The flame should not burn through the specimen within 15 minutes.

APPENDIX 12

SAVING AND TRANSITIONAL ARRANGEMENTS FOR EXISTING VESSELS

1. This Appendix outlines the transitional arrangements required for **existing vessels** to comply with the **Code**.

2. To the extent necessary, the requirements set out in

   2.1 The Safety of Small Commercial Sailing Vessels—A Code of Practice (the "Blue Code"), or

   2.2 The Safety of Small Commercial Motor Vessels—A Code of Practice (the "Yellow Code"), or

   2.3 The Safety of Small Vessels in Commercial Use for Sport or Pleasure Operating from a Nominated Departure Point—A Code of Practice (the "Red Code"), or

   2.4 their equivalent standards published in the technical Annex to MGN 280 (M)

   are incorporated into the **Code**.

3. **Existing vessels** that are certificated under:

   3.1 The Safety of Small Commercial Sailing Vessels—A Code of Practice (the "Blue Code"), or

   3.2 The Safety of Small Commercial Motor Vessels—A Code of Practice (the "Yellow Code"), or

   3.3 The Safety of Small Vessels in Commercial Use for Sport or Pleasure Operating from a Nominated Departure Point—A Code of Practice (the "Red Code"), or

   3.4 their equivalent standards published in the technical Annex to MGN 280 (M)

   shall meet the requirements of the **Code** by the **vessel**'s next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later, except, where references to previous requirements are explicitly specified within individual sections of the **Code** they may comply with such requirements.

4. **Vessels** which have their keels laid, or are at a **similar stage of construction**, between the entry into force of **MGN** 280(M) and the entry into force of the **Code**, may:

   .1 for the purposes of paragraph 3, be considered as **existing vessels** that are certificated under **MGN** 280; or

   .2 meet the requirements of the **Code** in full.

5. To the extent necessary, the Blue Code, Yellow Code, Red Code and their equivalent standards published in the technical Annex to **MGN** 280(M) are incorporated into the **Code**. These standards shall no longer be recognised for **new vessel** certifications after the date of entry into force of the **Code**.

6. Where sections of the **Code** refer to further details in appendices, it shall be taken that compliance with the requirements set out in these appendices is also required.

APPENDIX 13

USE OF ISO 12217-2 "MEANS OF ESCAPE" FOR MULTIHULL SAILING VESSELS OF 6 METRES AND ABOVE IN LENGTH

"Bow down trim" describes the trim when the bow is being depressed compared to the design trim.

"Weather deck at the stem" describes a watertight deck, excluding any bulwarks or raised stem post.

1. General Requirements

1.1 Sailing **multihull vessels** over 6 metres in **length** may have means of escape to the **vessel's** exterior which are accessible from each main inhabited **compartment** when the **vessel** is inverted. The **vessel** must comply with one of the following:

.1 the maximum transverse righting lever in the minimum operating condition (MOC) shall exceed:

.1 135% (catamarans); or

.2 180% (trimarans);

of the minimum requirement for the **vessel** (Table A13.1); or

.2 the longitudinal righting moment area in the MOC shall exceed:

.1 135% (catamarans); or

.2 180% (trimarans);

of the minimum requirement for the **vessel** (Table A13.2); or

.3 the wind speed the standard sail area is required to be reefed shall be calculated (Section 4), and must be less than Table A13.3.

.4 trimarans which have a beam between centres of buoyancy of sidehulls of:

.1 <14m for **design category** A; or

.2 <8m for **design category** B;

the volume of one side hull shall be <130% of the displaced volume in the **vessel's** maximum load condition.

Table A13.1 – Minimum requirements for maximum transverse righting level (metres)

Design Category	Catamarans	Trimarans
A	1.85/BPF	2.9/BPF
B	1.3/BPF	2.2/BPF
C	0.7/BPF	1.5/BPF

Table A13.2 – Minimum requirements for longitudinal righting moment area (kilonewton metre radians)

Design Category	Minimum longitudinal righting moment area
A	20/BPF
B	7/BPF

C	2/BPF

Table A13.3 – Wind speed at which the standard sail area is required to be reefed (knots)

Design Category	Wind speed at which the standard sail area is required to be reefed
A	25
B	22
C	19
D	16

2. Maximum Transverse Righting Level

2.1 To determine the Bare Poles Factor (BPF) (Table A.13.1) the **vessel's** theoretical wind speed in the MOC when all sails are stowed (VBP) shall be calculated using 4.2 and 4.4. The lesser value for transverse and longitudinal stability shall be used.

$BPF = \left(\frac{VBP}{70}\right) 0.4 \quad where \text{ VBP} < 70$

$BPF = 1.0 \; where \; VBP \geq 70$

3. Pitchpoling

3.1 The **vessel's** longitudinal righting moment area (kilonewton metre radians) in the MOC shall exceed the values in Table A13.2.

3.2 The **vessel's** longitudinal righting moment area (kilonewton metre radians) shall be calculated from:

.1 design trim to a bow down trim angle of 20°; or

.2 immersion of the weather deck at the stem (main hull for trimarans);

whichever occurs earlier.

4. Determination of safe wind speed information

4.1 Safe wind speed information is determined by undertaking the following steps:

.1 Calculate mass and associated centre of gravity (Section 7.2) in the **vessel's** MOC;

.2 Calculate the **vessel's** limiting righting moments (Section 5) using:

.1 rigorous or approximate methods for catamarans; or

.2 a rigorous method for trimarans.

.3 Identify the **vessel's** wind speed limit for stability data for each combination of sails set and load condition. The lesser value for each shall be adopted:

- Limiting transverse righting moment (LM_T) (see 4.2); and

- Limiting longitudinal righting moment (LM_L) (see 5.2).

4.2 The bare poles speed (V_{BP}) shall be calculated using:

$$V_{BP} = 1.85\sqrt{(LM_T)/(0.8\Sigma(A_{BP}\,h_{BP)} + \Sigma(A_{WM}h_{WM})}$$

$\Sigma(A_{BP}h_{BP})$ is the sum of, in m^3:

.1 the products of the lateral profile area of the hull;

.2 each item of the rig, including:

.1 mast(s) and boom(s) (but excluding wing masts);

.2 any antennae or fittings (e.g. radar scanner) with a profile area >0.01m2;

.3 standing rigging (area may be taken as 0.16 of the lateral profile of a non-wing mast);

.4 sails stowed on booms (profile area may be taken as: area of sail/25);

.5 roller furled sails (except in-mast furling sails). Area may be taken as LL(0.025 + LP /60). LL is luff length (m) and LP is the length of the perpendicular from clew to luff (m); and

.3 the height of the centroid of each above the geometric centre of the below water profile of the hull (with centre- or dagger-boards lowered and boat upright).

$\Sigma(A_{WM}h_{WM})$ is the sum, in m^3 of the products:

.1 of the lateral profile areas of wing masts (if fitted); and

.2 the height of the centroid of each above the geometric centre of the below water profile of the hull (with centre- or dagger-boards lowered and boat upright).

4.3 The wind speed limit based on the limiting transverse righting moment is calculated from:

$$V_W = 1.85\sqrt{(LM_T)/(0.8\Sigma(A_H h_H) + \Sigma(A_S h_S)}$$

where

V_W is the wind speed (knots)

$\Sigma(A_H h_H)$ is the sum (in m^3) of the products of the hull lateral profile area plus each item of the rig and the height of the centroid of each above the geometric centre of the below water profile of the hull (with centre- or dagger-boards lowered and **vessel** upright). Items of are:

- Mast(s) and boom(s) (excluding wing masts);
- Any antennae or fittings (e.g. radar scanner) with a profile area greater than 0.01m2;
- Standing rigging.

$\Sigma(A_S h_S)$ is the sum (m^3) of the products of the lateral profile area of each sail (including rotating wing masts) and the height of the centroid of each above the geometric centre of the below water profile of the hull (with centre- or dagger-boards lowered, and **vessel** upright).

4.4 The wind speed limit (V_W) or bare poles speed (V_{BP}) based on the limiting longitudinal righting moment is calculated using 4.2 and 4.3 but replacing the following:

- the LM_L instead of the LM_T;
- the frontal area instead of the lateral profile area for the hull and mast(s);
- the height of the centroid of each element above the waterline instead of to the geometric centre of the below-water profile of hull.

5 Limiting Righting Moments

5.1 Transverse

5.1.1 The LM_T is the maximum righting moment (newton metres), and is calculated using 7.3 , or $B_{CB} > 6T_C$ for catamarans:

$$LM_T = 9.4m(0.5B_{CB}cos\Phi GZ_{max} - VCGsin\Phi GZ_{max})$$

where

m is the mass of the **vessel** (kg)

VCG is the height of the centre of gravity (metres) above the bottom of the canoe body and may be estimated as the height of the sheerline at mid-length of L_{WL}

ΦGZ_{MAX} is the estimated angle of heel of maximum righting lever (degrees)

$$\Phi GZ_{max} = tan^{-1}(\frac{m}{254L_{WL}B_{WL}B_{CB}})$$

5.2 Longitudinal

5.2.1 The LM_L (newton-metres) is determined for the bow-down trim angle (from the design trim) which is either:

.1 the angle at which the foredeck at the stem is about to become immersed; or

.2 20°;

whichever is lower. LM_L (newton metres) may be calculated using Section 6,

where

m is the mass of the boat (kg);

A_W is the total waterplane area of all hulls at design waterline (m^2).

6 Determination of longitudinal righting characteristics

6.2, 6.3 and 6.4 may be used for catamarans. 6.3 or 6.4 may be used for trimarans.

6.1 General

6.1.1 The longitudinal righting moment is required to be applied at design trim to attain a bow-down trim angle of 20° of immersion or the upper deck at the stem, whichever occurs earlier.

Limiting longitudinal righting moment area is the area under the curve of longitudinal righting moments (in kilonewton metre radians), calculated from design trim to a bow-down trim angle of 20° or immersion of the weather deck at the stem, whichever occurs earlier.

6.2 Approximate methods

6.2.1 These methods are only for trim by the bow (i.e. bow down).

The LM_L (kNm) may be estimated from:

$(\theta_L B_{WL}(L_H + L_{WL})^3)/3000$

The limiting longitudinal moment area (kNmrad) may be estimated from:

$(\theta_L B_{WL}(L_H + L_{WL})^3)/300000$

Where

θ_L is the limiting trim angle (degrees), being the lesser of 20° or the angle of immersion of the weather deck at the stem. The latter may be estimated from: $1.4tan^{-1}[\frac{F_S}{R+ L_B}]$

B_{WL} is the sum of maximum waterline beams of all individual hulls (metres) with the **vessel** being upright, in the appropriate loading condition and at a design trim (See **MIN** 724)

F_S is the vertical freeboard from waterline to intersection of line of foredeck and outer stem

R is the bow rake, i.e. the longitudinal distance from intersection of line of weather deck and outer stem to forward end of waterline

L_B is the longitudinal distance from longitudinal centre of buoyancy of immersed hulls at design trim to forward end of waterline

6.3 Simplified Methods

These methods are only for trim by the bow (i.e. bow down) or by the stern (i.e. stern down).

6.3.1 Longitudinal Righting Moment

6.3.1.1 The longitudinal righting lever curve can be obtained using a computer stability program:

.1 find the LCG for design trim from the LCB, using hydrostatics data;

.2 move the LCG forward in a series of arbitrary steps, retaining the original VCG;

.3 at each step in LCG find the equilibrium trim angle and the height to immersion of the foredeck at the stem;

.4 at each step calculate the longitudinal righting lever from: GZ_L = (change in LCG from design trim) cos(trim angle;

.5 at each step calculate longitudinal righting moment = $(m_{MO}GZ_L)/102$ (kNm)

.6 graph longitudinal righting moment and height to immersion of the foredeck against trim angle;

.7 determine whether or not the foredeck becomes immersed at a trim angle less than 20°. The limiting trim angle is the lesser of 20° and the angle at which the immersion of the weather deck at the stem (main hull for trimarans);

.8 determine the limiting longitudinal righting moment and calculate the longitudinal righting moment area to the limiting trim angle from the graph, and convert to kNmrad by dividing by 57.296.

6.3.2 Transverse Righting Moment when Trimmed

6.3.2.1 The transverse righting moment at 1° heel when trimmed may be calculated as follows:

.1 find the LCG and GZ_L at the limiting trim angle conducted according to 6.3.1;

.2 calculate the transverse GM for the boat when trimmed (GM_{TT}) using:

.1 LCG as in 6.3.2.1.1 above; and

.2 VCG = (original VCG) + [GZ_L x tan(limiting trim angle)];

.3 calculate the transverse righting moment at 1° heel when trimmed = $0.1711 m_{MO} GM_{TT}$ (Nm).

6.4 Rigorous Method

This method is only for trim by the bow (i.e. bow down) or by the stern (i.e. stern down).

6.4.1 This method requires the use of either:

.1 computer software to calculate longitudinal and transverse righting moments; or

.2 a three-dimensional computer model of the hull which may be used to generate closely spaced longitudinal sections and calculate the pitch righting moments.

The righting moment at 1° heel when trimmed may be calculated using 6.3.2, but LCG and GZ_L at the limiting trim angle must be determined directly.

7 Determining the Curve of Righting Moments

7.1 Method

The curve of righting moments shall be determined using 7.3. The mass and centre of gravity used shall conform to 7.1.

7.2 Mass and Centre of Gravity

7.2.1 Mass

7.2.1.1 One of the following methods shall be used to determine the **vessel's** mass:

.1 weighing (e.g. using crane weigher) corrected to appropriate displacement mass;

.2 calculation from the lines plan using a waterline observed on a boat afloat in a known load condition, by means of freeboards or draughts; using a measured specific gravity for the water, and corrected to the appropriate loading condition;

.3 calculation based on the mass of a closely similar boat derived by 7.2.1.1.1 or 7.2.1.1.2, with the mass of known changes determined solely by calculation. This shall only be used where the change in mass in the empty craft condition is <10%.

7.2.2 Vertical Centre of Gravity

7.2.2.1 The **vessel's** VCG shall be determined by:

.1 an inclining experiment in water (see 3.6.7), the results being corrected to the appropriate loading condition. Only for **vessels** with a metacentric height <5.0m;

.2 an inclining experiment in air using a known length of suspension and moving weights transversely, the results being corrected to the appropriate loading condition;

.3 calculation based on mass and centres of gravity of all individual components, raised by an addition of 5% of (F_M + T_C). Only for **vessels** with a metacentric height > 1.5m.

Any centreboard or keel shall be in the raised position unless it can be fixed in the lowered position and an appropriate instruction is given in the owner's manual.

7.2.2.2 For the purposes of determining the curve of righting levers:

.1 for calculations for the MOC the **crew's** mass shall be at the main **control position**;

.2 for calculations for the loaded arrival condition:

.1 fuel and water shall be located in the fixed tanks;

.2 provisions shall be stowed in an appropriate location;

.3 the mass of additional **crew** (crew limit less than required for m_{MO}) shall be added at sheerline height at the mid-length of L_H.

7.3 Longitudinal Centre of Gravity

7.3.1 One of the following shall be used to determine the longitudinal position of the centre of gravity (LCG) of the empty **vessel**:

.1 The methods set out in 7.2.1.1.2 or 7.2.1.2.3;

.2 calculation based on the calculated mass and centres of gravity of all individual components;

.3 suspension of the **vessel** in air, identifying the LCG using a plumb line from the suspension point.

7.4 Free-surface Effect

7.4.1 Where a **vessel** has tank(s) (e.g. fuel or grey water) with a maximum transverse dimension >0.35B_H shall have their righting moments calculated with all tank contents (Table A13.4).

Tanks with open cross-connections shall have the maximum transverse dimension measured between the extremes of the linked tanks.

Table A13.4 Contents of tanks for calculation of righting moments

Tank	**Loading condition**	
	Loaded arrival	**Minimum operating**
Fuel	**10%**	**0%**
Fresh water	**10%**	**0%**
Black/grey water	**95%**	**0%**
Oils	**10%**	**0%**
Bait tanks, live wells	**95%**	**0%**

7.4.2 Where applicable, free-surface effect shall be represented by a virtual increase in the VCG or using computer software that models the movement of fluid in tanks with trim and heel.

$$virtual\ increase\ in\ the\ boat's\ VCG\ due\ to\ each\ tank = \frac{SMA_{TANK}\ X\ \rho_{TANK}}{m}, expressed\ in\ metres$$

Where

ρ_{TANK} is the density of fluid in tank, expressed in kg/m^3

m is the mass of the boat in the relevant loading condition, expressed in kilograms

SMA_{TANK} is the second moment of area of waterplane of tank contents about longitudinal axis through its centre of area, expressed in m^4. If tanks are linked by cross-connections that are kept open when the boat is in use, then the value of SMA_{TANK} shall be calculated assuming that all linked tanks act as one.

7.5 Determinations by Rigorous Calculation

7.5.1 Righting lever curves are normally calculated with recesses modelled, assuming that, at each heel angle, recesses flood up to the exterior water level. Up to the angle of heel at which recesses would otherwise fill (e.g. coaming submergence) righting levers may be calculated ignoring flooding of recesses through:

.1 freeing ports equipped with non-return flaps which are watertight from the exterior to degree 3 of ISO 1226; or

.2 drains having a combined cross-sectional area smaller than three times the minimum area required to comply with ISO 11812 for quick-draining cockpits.

7.5.2 The buoyancy of superstructures and deckhouses may be included, provided the structure (including windows) is watertight in accordance with ISO 12216 and has sufficient structural strength to survive the **vessel** being rolled to a heel angle through 180°.

7.5.3 Righting moment is equal to the righting lever in metres multiplied by the **vessel** mass (kg) multiplied by 9806 and expressed in newton metres.

APPENDIX 14

SAMPLE CERTIFICATES

See sample certificates on the following pages.

SPORT OR PLEASURE VESSEL CERTIFICATE

"NAME OF VESSEL"

Unique Number

Issued under SI 2025/1195 and the authority of the Maritime & Coastguard Agency, an Executive Agency of the United Kingdom Department for Transport

Maritime & Coastguard Agency

Certifying Authority authorised by the MCA

Name of Owner/Managing Agent
Address

Type of Vessel
Use of Vessel
Official Number
Port of Registry
Gross Tonnage
Hull Identification Number
Maximum number of persons on board
Length Overall
Load Line Length (if LOA >24M)
Date of Build
Date of last out of water examination

This is to certify that the above named vessel was examined by (CA) Approved Examiner, (Name) **at** (Place) **from** (Date) **to** (Date) and found to be in accordance with the requirements of *The Sport or Pleasure Vessel Code,* published by the Maritime and Coastguard Agency of the Department for Transport.

This certificate will remain valid until (date) subject to the vessel, its machinery and systems and equipment being efficiently maintained, with examinations and manning as required by the Code of Practice and that any modifications or damage to the vessel is reported to the Certifying Authority and any repair is approved as required and considered rectified by the Certifying Authority as required by the relevant part of the Code.

For limitations & Conditions please see the reverse of the certificate

Maximum loading condition — **Total loading of persons and equipment is not to exceed** (load or refer to SIB) **in kg**

Permitted area of operation (Category) GMDSS Area

Midterm examination by a (CA) Authorised Examiner due before (Date)
This certificate was issued at (CA Office) on (Date):

This certificate expires on (Date):

Name (Name) for and on behalf of (CA) Technical Committee.

Signature: (CA) Official Stamp

This certificate is equivalent to UK Load Line Exemption Certificate

MLC Compliance Statements

This certificate is only valid for commercial operation on international voyages or voyages of more than 60 miles from a UK safe haven with seafarers on board if

(a) The vessel is certificated for category 0, 1 or 2; and

(b) The certificate is accompanied by a valid MLC inspection report demonstrating compliance with the MLC.

Conditions and Limitations: -

1. To comply with the Documentation of Compliance SCV2.

2. When the vessel is sold this certificate is automatically cancelled and must be returned to the (CA) Office

3. All vessels that require stability information, must carry the relevant stability information on board the vessel

SPORT OR PLEASURE VESSEL STATEMENT OF COMPLIANCE

"NAME OF VESSEL"

Unique Number

Issued to confirm compliance with *The Sport or Pleasure Vessel Code*, published by the Maritime and Coastguard Agency, an Executive Agency of the UK Department of Transport.

Maritime & Coastguard Agency

Certifying Authority authorised by the MCA

Name of Owner/Managing Agent
Address

Type of Vessel
Use of Vessel
Official Number
Port of Registry
Gross Tonnage
Hull Identification Number
Maximum number of persons on board
Length Overall
Load Line Length (if LOA >24M)
Date of Build
Date of last out of water examination

This is to certify that the above named vessel was examined by (CA) Approved Examiner, (Name) **at** (Place) **from** (Date) **to** (Date) and found to be in accordance with the requirements of *The Sport or Pleasure Vessel Code,* published by the Maritime and Coastguard Agency of the Department for Transport.

This statement of compliance will remain valid until (date) subject to the vessel, its machinery and systems and equipment being efficiently maintained, with examinations and manning as required by the Code of Practice and that any modifications or damage to the vessel is reported to the Certifying Authority and any repair is approved as required and considered rectified by the Certifying Authority as required by the relevant part of the Code.

For limitations & Conditions please see the reverse of the certificate

Maximum loading condition — **Total loading of persons and equipment is not to exceed** (load or refer to SIB) **in kg**

Permitted area of operation (Category) GMDSS Area

Midterm examination by a (CA) Authorised Examiner due before Date

This statement of compliance was issued at (CA Office) on (Date):

This statement of compliance expires on (Date):

Name (Name) for and on behalf of (CA) Technical Committee.

Signature: (CA) Official Stamp

Conditions and Limitations: -

1. To comply with the Documentation of Compliance SCV2.

2. When the vessel is sold this certificate is automatically cancelled and must be returned to the (CA) Office

3. All vessels that require stability information, must carry the relevant stability information on board the vessel

Annex 1

Alternative Fuels and Propulsion Systems

This Annex, in conjunction with **MGN 550**[88] **as amended**, provides all the additional information needed for **vessels** that use **lithium-ion batteries** or **lead-acid batteries** as a source of power for propulsion (whether exclusively, or in conjunction with **diesel** fuel in a **battery-hybrid propulsion system**) and shall be referred to alongside the main body of the **Code**. In this Annex **lithium-ion batteries** and **lead-acid batteries** are collectively referred to as batteries, unless where specified.

Where a **Certifying Authority** considers it does not have the necessary expertise to deal with **vessels** which use **lithium-ion batteries** or **lead-acid batteries** as a source of power for propulsion, the **Administration** shall be consulted with regard to the procedures to be adopted.

1. Ventilation

The purpose of this section of this Annex is to provide the additional ventilation equipment and component requirements for **battery-hybrid** or **battery-electric** powered **vessels**, including thresholds for effective ventilation of **battery boxes** and **battery rooms** relevant to battery capacity.

1.1 General Requirements

1.1.1 See Section 9.3.2.3 in the main body of the **Code** for general requirements for ventilation.

1.1.2 It is the responsibility of the **vessel owner/operator** to ensure that the ventilation arrangements are in accordance with the battery manufacturer's recommendations.

1.1.3 Active or passive ventilation of **battery boxes** and **battery rooms** shall be separate from other on-board heating, ventilation or air conditioning systems.

1.1.4 Any failure or fault in an active ventilation system shall activate an audible and visual alarm at the **control position(s)** or **steering position(s)**.

1.1.5 Positive isolation devices shall be designed to remain operable in event of equipment failure or emergency conditions.

1.1.6 All batteries used for a source of power for propulsion shall be stored in **battery boxes** or **battery rooms** (see section 3.1.1 of this Annex). **Battery boxes** and **battery rooms** shall be adequately ventilated, by either passive or active ventilation, to prevent the build-up of explosive or toxic gases.

1.1.7 A power-driven active ventilator shall be connected to a back-up power source which automatically activates if the primary power source fails, ensuring that ventilation can continue even during emergency conditions.

[88] MGN 550 (M+F) Electrical Installations - Guidance for Safe Design, Installation and Operation of Lithium-ion Batteries, **as amended.**

1.1.8 Ventilation exhaust outlet(s) shall discharge to open air and shall, as far as practicable, not be located in any areas where **crew** or **passengers** are likely to be.

1.2 Ventilation Equipment

1.2.1 Exhaust ducts shall, during normal operations, prevent exhaust gases, rainwater or seawater from being drawn through air intakes.

1.2.2 Ventilators and ventilation fans located within, or feeding, **battery boxes** and **battery rooms** shall be composed of Ex-rated and non-static materials and components, and shall be of a construction suitable to withstand any corrosive gases which may be produced by the batteries.

1.2.3 Dedicated active or passive ventilation ducting shall be used to discharge off-gassing from batteries to the open air and shall be located at a height above deck sufficient to prevent inadvertent downflooding if the **vessel** is heeled. (See **MIN** 724).

1.2.4 Back-up batteries that power active ventilators during emergency conditions must not be stored within the area(s) that they ventilate.

1.3 Ventilation of Battery Boxes and Rooms

1.3.1 Batteries located in a **battery box** may be ventilated by either::

.1 passive ventilation, where battery off-gas would not produce an explosive atmosphere; or

.2 active ventilation.

1.3.2 Batteries located in a **battery room** shall be ventilated by active ventilation.

1.3.3 The required number of air changes per hour for a **battery box** or **battery room** shall be calculated using:

$$Air\ changes\ per\ hour = \alpha 60/\beta\gamma$$

Where:

α = airflow per minute (m^3)

β = total area of the **battery box** or **battery space**

γ = height of the ceiling in the **battery box** or **battery space**

A **battery box** or **battery room** shall have not less than 6 air changes per hour.

1.3.4 If a fire is detected ventilators shall stop automatically, except in the presence of an explosive atmosphere. Ventilators shall be able to continue operating safely in the presence of an explosive atmosphere.

1.3.5 For active ventilation, air inlet(s) and an exhaust outlet(s) shall be positioned to ensure effective distribution of air through the space.

1.3.6 Where the required ventilation or battery storage location cannot be met due to being impracticable or unsafe, alternative arrangements providing an equivalent level of safety may be considered on a case-by-case basis by the **Administration**.

2 Battery-Electric Propulsion

The purpose of this section of this Annex is to provide requirements and standards for the operation, monitoring, charging, and replacement of **lithium-ion batteries** or **lead-acid batteries** used as a source of power for propulsion, and requirements for battery management, power management and cooling systems which manage and stabilise battery conditions.

2.1 Approval of Battery-Electric Propulsion Systems

2.1.1 The design and installation of the **propulsion system** and batteries shall be suitable for marine use with due consideration of humidity, temperature, degradation due to a saltwater environment and vibration. (See **MIN** 724).

2.2 Testing and Assessment of Batteries and Associated Systems

2.2.1 For newbuilds a risk assessment shall be carried out by the **vessel** manufacturer.

For retrofitted vessels a risk assessment shall be carried out by the **vessel owner/operator**.

The risk assessment, and shall be submitted to the **Certifying Authority** for consideration, and shall be submitted by the **Certifying Authority** to the **Administration** for consideration and approval. The risk assessment shall, at a minimum, assess all risks associated with the following components and systems:

.1 batteries;

.2 **battery management system**;

.3 **battery box** or **battery room**;

.4 spaces surrounding **battery boxes** or adjoining **battery rooms**;

.5 charging system;

.6 fuses and cables;

.7 switchgear

.8 required alarms and shutdowns;

.9 sensors and detectors (see section 3.2 of this Annex);

.10 fire suppression system;

.11 passive or active ventilation;

.12 fire extinguishers (if appropriate);

.13 cooling system (if installed);

.14 hybrid **power management system** (if installed);

.15 interfaces with other **vessel** systems; and

.16 any sensors, detectors, safety measures or other equipment installed in excess of the requirements of the **Code**.

The risk assessment shall consider the components of the batteries and connected systems both individually and as an entire operating unit, and shall be carried out either as part of, or in addition to, the risk assessment required in Section 3.13 of the **Code**.

2.2.2 Batteries intended to power a **vessel's** internal combustion engine or motor shall comply with recognised **standards.** (See **MIN** 724).

2.2.3 Batteries intended to be used as a source of power for propulsion shall be tested at **cell**, module and system levels. The **Administration** must be satisfied that the batteries meets a **standard** recognised in **MIN** 724.

2.2.4 Batteries are permitted to be used as emergency batteries or engine start batteries.

2.2.5 An intention to test batteries shall be notified to the **Certifying Authority** and **Administration** with reasonable notice, and the **Certifying Authority** may require that a surveyor witness the battery tests.

2.2.6 The **Administration** reserves the right to appoint an **MCA** surveyor, or other designated person, to witness battery tests.

2.3 General Requirements

2.3.1 A **battery-electric** powered **vessel** shall have sufficient charged capacity for its intended voyage. A **battery-hybrid** powered **vessel** shall be provided with a combination of sufficient charged capacity and fuel for its intended area of operation.

2.3.2 The components of batteries, connected systems and installations shall be designed to protect the **vessel**, other equipment and any persons on board against electrical hazards, and shall be suitable for marine use.

2.3.3 Fuses, cables and circuit breakers shall comply with a **standard** recognised in **MIN** 724.

2.3.4 **Vessel owner/operator**s shall keep a copy (whether a hard-copy or electronic) of the battery manufacturer's instructions for use. Where it is not practicable to keep the instructions on board, it may be retained on shore.

2.3.5 Batteries and its connections shall have ingress protection with a minimum IP44 rating which is appropriate to the risks associated with the (see **MIN** 724):

.1 location in which the batteries are installed; and

.2 risk of ingress.

2.3.6 The following information shall be clearly detailed in the operating manual, and shall be available at the **control position(s)** or **steering position**(s). Internationally recognised signage shall be used where appropriate (see also Appendix 6 of the **Code and MIN** 724):

.1 battery **cell** chemistry;

.2 fire suppression system requirements and method of operation;

.3 maximum charging and discharging characteristics;

.4 safe upper and lower ambient temperature;

.5 what protective device(s) and/or safety feature(s) are installed, if applicable; and

.6 battery manufacturer's name.

2.3.7 Means shall be provided to isolate the batteries from outside, or remotely to, the **battery box** or **battery room**.

2.3.8 **Lead-acid batteries** shall comply with the requirements of Sections 9.3.1.2, 9.3.1.5 and 9.3.2 of the **Code**.

2.4 Installation of batteries and electrical equipment

2.4.1 **Battery boxes** and **battery rooms** shall be located away from high risk factors including, but not limited to, critical components, fuel tanks, fire hazards, escape routes and life-saving apparatus, and shall not be located in front of a collision bulkhead. Where, due to the size of the **vessel**, this is not practicable alternative arrangements providing an equivalent level of safety may be considered on a case-by-case basis subject to the approval of the **Administration**.

2.4.2 Batteries approved by the battery manufacturer to be safely co-located with other equipment within a **battery box** or **battery room** may be co-located with the following:

.1 **critical equipment**;

.2 fuel tanks;

.3 fire hazards; and

.4 electrical equipment;

subject to completion of a risk assessment carried out by the **vessel owner/operator**, and submitted via the **Certifying Authority** to the **Administration** for consideration and approval.

2.4.3 Batteries and the **BMS** shall be located in a position not likely to flood during normal operation, or in the event of minor damage (see section 9.3.2.1 of the **Code**).

2.4.4 Batteries shall be secured firmly (such as within mounting frames) to avoid movement either during normal conditions, or when the **vessel** is subjected to sudden acceleration, deceleration, or a large angle of heel or trim.

2.4.5 Batteries shall be positioned and secured to minimise exposure to mechanical damage, slamming accelerations or excessive vibration.

2.4.6 Battery casing shall be composed of flame-retardant and moisture resistant materials.

2.4.7 Batteries and the **BMS** shall (see **MIN** 724):

.1 be fully compatible with the electromagnetic emissions they will be exposed to during a **vessel's** anticipated range of operating conditions; and

.2 not produce electromagnetic emissions that will affect the operation of all other equipment on board the **vessel**.

2.4.8 Batteries shall be positioned so that all parts requiring inspection or replacement whilst in service can be safely accessed.

2.4.9 Batteries shall be protected against overheating even when disconnected from a power source or isolated.

2.4.10 Means shall be provided to fully isolate a battery, and to electrically isolate a battery at the pack level for maintenance, or to address a fault, with means to lock the system off or otherwise ensure that it cannot be reactivated during maintenance.

2.4.11 Outgoing circuits from batteries shall have switchgear or equivalent means to electrically isolate the circuits.

2.4.12 An emergency power-off circuit shall be installed to allow isolation and remote stopping of batteries from outside, or remotely to, the **battery box** or **battery room**.

2.4.13 Batteries and connected systems shall be designed to remain in a **safe state** in event of exposure to seawater.

2.4.14 All electrical equipment and connected systems associated with the maintenance, monitoring or charging of batteries in the scope of this Annex (see section 9 of the **Code**) shall:

.1 operate safely in the **vessel's** anticipated range of operating conditions;

.2 minimise the risk of initiating fire or explosion;

.3 enable maintenance and repair; and

.4 be appropriately protected against the effects of humidity, temperature, and degradation due to seawater and vibration.

2.4.15 Electrical equipment associated with batteries and connected systems located on the deck or external structure of a **vessel** shall meet, at a minimum, IPX4.

2.4.16 Electrical equipment associated with batteries and connected systems located below deck or in the internal of a **vessel** shall meet, at a minimum, IPX2.

2.4.17 Equipment and spares used for maintenance of batteries, connected systems and electrical equipment shall be manufacturer approved and to the satisfaction of the **Certifying Authority**.

2.5 Battery Replacement

2.5.1 A battery module or system shall be replaced where:

.1 it can no longer function safely;

.2 it has reached an end-of-life state; or

.3 the battery's **state of health** (**SOH**) or C-rate capability has declined below the minimum level needed to deliver the required **vessel** performance.

2.5.2 Where batteries used as a source of power for propulsion are replaced, they must be of an equivalent type, including full compatibility with all on-board systems. New and old batteries must not be connected in parallel.

2.5.3 Where batteries used as a source of power for propulsion are replaced with a type which is not equivalent it must be treated as a new installation, and a survey shall be carried out to the satisfaction of the **Certifying Authority** (see 3.13.2 of the **Code**).

2.5.4 **Vessel owners/operators** shall comply with the requirements for end-of-life disassembly and recycling of **lithium-ion batteries** are detailed in MGN 550, **as amended**.

2.6 Battery Boxes and Battery Rooms

2.6.1 Batteries used as a source of power for propulsion, as part of a **battery-electric** or **battery-hybrid** system shall be located in **battery boxes** or **battery rooms** as set out in section 1.3.1 of this Annex.

2.6.2 Ventilation requirements for **battery boxes** and **battery rooms** are detailed in section 1.3 of this Annex.

2.6.3 Electrical equipment shall, as far as practicable, be located in non-hazardous areas. Only electrical equipment required either for operational reasons, or for lighting, within the space itself may be installed within **battery boxes**, **battery rooms** or ventilation exhaust ducts, and shall not contribute any additional overall fire risk (see **MIN** 724). Such equipment shall be Ex-rated and IIC atmosphere certified.

2.6.4 Where size allows, electrical equipment shall not be located within 1.5 m of **battery box** or **battery room** ventilation outlets.

2.6.5 Batteries which meet the safe co-location requirements of section 2.4.2 of this Annex are not required to meet the requirements of section 2.6.3 of this Annex.

2.6.6 Light fittings in a **battery box** or **battery room** shall be appropriately protected (e.g. by glass) to reduce the risk of sparking. Light fittings shall be isolated if the protection fails.

2.6.7 Openings to **battery boxes** or **battery rooms** where exhaust gas build-up is a risk shall be gas-tight. Openings shall not be located next to spaces containing combustible or flammable materials.

2.6.8 **Battery boxes** and **battery rooms** shall be kept clean and clear of oily waste.

2.6.9 The ambient temperature of a **battery box** or **battery room** shall be monitored by the **Battery Management System**, **Energy Management System** and **Power Management System**, as appropriate, to allow management of the battery system. The ambient temperature of a **battery box** or **battery room** and also shall be displayed at the **control position(s)** or **steering position**(s). (See **MIN** 724).

2.6.10 A walk-in **battery room** shall meet the means of escape requirements set out in section 15.7 of the **Code**.

2.6.11 **Battery boxes** and **battery rooms** shall not form a means of access to any other **compartment**, or form part of an escape route.

2.6.12 Where battery modules or systems are contained within gastight containers, a safety pressure relief valve or weak point must be included within the container design. A pressure relief valve or weak point shall vent to open air.

2.7 Signage and Training

2.7.1 Safety warning signs shall be displayed outside **battery boxes** and **battery rooms** detailing that:

.1 appropriate precautions are to be taken when opening or entering this space;

.2 naked lights, smoking and sources of ignition are not permitted within or outside the entrance of a **battery box** or **battery room** or ventilation discharge points; and

.3 no unauthorised personnel are permitted to enter or open **battery boxes** or **battery rooms**.

2.7.2 Batteries, **high voltage** equipment, battery systems and compartments shall be adequately labelled using internationally recognised symbols, where available.

2.7.3 A record of the battery, **Battery Management System**, **Power Management System** and **Energy Management System** specifications for operation (e.g. maximum temperature or discharge rates) shall be stored in a known accessible location.

2.7.4 The following documents shall be stored at the **control position(s)** or **steering position**(s):

.1 a manual detailing standard operating, maintenance and emergency procedures for the batteries and connected systems; and

.2 a management plan for the lifetime of the batteries (including disposal).

2.7.5 There shall be at least one person on board the **vessel** who is trained in the range of alarms produced by the battery, **Battery Management System** and **Power Management System/Energy Management System**, the meaning of the alarms and any required action(s).

2.7.6 All **crew** on board a **vessel** shall have an awareness of the **vessel's** emergency procedures relating to batteries, the **Battery Management System**, **Power Management System/Energy Management System** and associated systems.

2.8 Starting and Stopping of Propulsion Systems

2.8.1 Where the sole means of starting the **propulsion system** is by batteries there shall be a spare battery to provide back-up power for starting of the **propulsion**

system. Charging facilities for the spare battery shall be available. (See **MIN** 724).

2.8.2 The **vessel owner/operator** shall have a contingency plan in place which details actions to be taken if the designated back-up power source fails.

2.9 Battery and Power Management Systems

2.9.1 All **vessels** which use batteries as a source of power for propulsion shall have a **Battery Management System** and a **Power Management System**/**Energy Management System** installed, details of which shall be submitted via the **Certifying Authority** to the **Administration** for consideration and approval. If a **Battery Management System** is replaced, or has its programming significantly altered, details of the replacement or reprogramming shall be submitted via the **Certifying Authority** to the **Administration** for reconsideration and approval. (See **MIN** 724)

2.9.2 A **Battery Management System** shall be required to detect, monitor, respond and produce alarms to, at a minimum, the following operational conditions. (See **MIN** 724):

.1 voltage (at **cell**, module and system level);

.2 temperature (at **cell**, module and system level); and

.3 current (at string level).

2.9.3 A **Battery Management System** shall, at a minimum, calculate, transmit and display **State of Charge** (**SOC**) at key locations (including the **control position(s)** or **steering position(s)**). (See **MIN** 724).

It is strongly recommended that a **Battery Management System** calculates, transmits and displays estimated **State of Health** (**SOH**) at key locations (including the **control position**(s) or **steering position**(s).

.1 **State of Charge** (**SOC**); and

.2 **State of Health** (**SOH**) estimate.

2.9.4 An alarm shall be produced at the **control position(s)** or **steering position(s)** if any of the following occurs:

.1 loss of communication between the **Battery Management System** and **Energy Management System** or **Power Management System**;

.2 **Battery Management System** failure;

.3 the cooling system (if installed) develops a fault or fails;

.4 the **Battery Management System** has disconnected a battery pack(s);

.5 the **Battery Management System** operates a battery in a derated condition;

.6 low remaining battery charge;

.7 ambient temperature in the **battery box** or **battery room** exceeds a specified level, which shall not exceed the peak operating temperature as specified by the battery manufacturer;

.8 a build-up of explosive gases are detected (as per the requirements of section 3.2.2 of this Annex).

2.9.5 A **Battery Management System** shall record atypical event data and diagnostic information, and shall reports the occurrence of such an event to the **control position(s)** or **steering position(s)**.

2.9.6 A **Battery Management System** shall be tested and inspected as per the manufacturer's requirements.

2.9.7 A **Battery Management System**, including all its components, shall be protected against impact or falling objects.

2.9.8 A **Battery Management System** or **Power Management System** shall provide an indication at the **control position(s)** or **steering position(s)** when servicing of the batteries, ventilation, fire suppression and connected systems is due.

2.9.9 A **Battery Management System** shall maintain balancing of **cell** voltage at module and system levels.

2.9.10 Where a **Battery Management System** acts to isolate a battery string(s) or module(s) this shall be communicated with the **Energy Management System** or **Power Management System** to ensure that:

.1 the battery system is not overloaded; and

.2 the correct remaining range is displayed at the **control position(s)** or **steering position**(s).

2.9.11 A **Battery Management System** shall have a backup source of power.

2.9.12 A **Battery Management System** built into the battery, or powered by the battery it manages:

.1 is not required to comply with 2.9.12; and

.2 shall have the ability to fail-safe.

2.9.1 For **battery-hybrid propulsion systems** the **Power Management System** shall balance both the **diesel** and battery power sources to ensure system stability and effective load-sharing.

2.10 Charging of Lithium-ion Batteries and Lead-Acid Batteries

2.10.1 A **vessel** with a **battery-electric propulsion system** shall charge its batteries:

.1 using **shore charging**;

.2 from a mother vessel; or

.3 from a platform-based facility.

2.10.2 A **vessel** with a **battery-hybrid propulsion system** shall charge its batteries by:

.1 **shore charging**; and/or

.2 charging from a mother vessel; and/or

.3 charging from a platform-based facility; and/or

.4 a self-charging **battery-hybrid propulsion system**.

2.10.3 A **vessel** is not permitted to be charged by another **vessel**, except where a tender or daughter craft is charged by a mother vessel (see section 24 of the **Code**).

2.10.4 Charging cables and associated equipment for charging of batteries used for propulsion shall either:

.1 be carried on board the **vessel** being charged; and/or

.2 be provided by the **shore charging** facilities, mother vessel or platform-based facility.

2.10.5 Batteries shall be charged in accordance with manufacturer's instructions.

2.10.6 Battery charging systems shall have overcurrent and overcharge protection, and must constantly communicate with, and remain within set limits defined by the **Battery Management System**.

2.11 Shore Charging

2.11.1 A **vessel** which uses batteries as a source of power for propulsion, and can be charged by an on-shore mains power source, shall have a sufficient number of electric **charging points** installed on the **vessel**.

2.11.2 Electric **charging points** shall be:

.1 located at a height above deck sufficient to prevent inadvertent downflooding if the **vessel** is heeled;

.2 sealed with a **watertight** cap when not in use; and

.3 constructed of non-sparking materials.

2.11.3 A **vessel** with a **battery-hybrid propulsion system** shall not have an electric **charging point** located adjacent to a ventilation or exhaust vent.

2.11.4 The charging system shall be included within the **high voltage interlock loop**. Any break of the loop shall stop charging and isolate the charger from the battery terminals.

2.11.5 A **vessel** shall, at a minimum, have the following installed to monitor charging from an on-shore mains power source:

.1 voltmeter; and

.2 current meter.

2.12 Vessels with a Self-Charging Battery-Hybrid Propulsion System

2.12.1 **Vessels** with a self-charging **battery-hybrid propulsion system** shall be designed to safely charge the batteries whilst operating in a **diesel** mode of

propulsion. This shall be demonstrated to the satisfaction of the **Certifying Authority**.

2.13 Cooling Systems

2.13.1 Batteries shall be cooled by either:

.1 passive or active ventilation of the **battery box** or **battery room** (see section 1.3.1 of this Annex); or

.2 direct cooling (such as liquid cooling) from a dedicated battery cooling system.

2.13.2 Battery cooling systems shall be able to maintain battery **cells** within their required operational temperature range, including during fault events where **cell** temperature spikes but remains within operational limits.

2.13.3 Auditory Audible and visual alarms shall be activated at the **control position(s)** or **steering position**(s) if the cooling system fails or develops a fault, including where the following are detected:

.1 high coolant temperature; or

.2 reduced coolant flow.

3 Fire Safety and Appliances

The purpose of this section is to provide a level of fire safety for **vessels**, which is designed to extinguish minor battery fires, prevent minor battery fires from becoming major fires, and in the event of a major battery fire permit enough time for the evacuation of the **vessel**. Where a minor battery fire has occurred, this section provides structural integrity requirements of **battery boxes** and **battery rooms** to enable the **vessel** to remain habitable.

3.1 Construction Standards for Battery Boxes and Battery Room

3.1.1 Batteries shall, in accordance with the battery manufacturer's recommendations, be located within either a:

.1 steel or other equivalent material plated **battery box**; or

.2 dedicated **steel or other equivalent material** plated **battery room** with A0 fire integrity.

3.1.2 A risk assessment shall be carried out as per the requirements of section 2.2.1 of this Annex.

3.1.3 Any penetrations through **battery box** or **battery room** insulation shall be of an equal fire rating to the insulation it passes through.

3.1.4 If a risk of static in the **battery box** or **battery room** is identified, and cannot be suitably mitigated, the walls of the box or room shall be painted with anti-static paint.

3.2 Battery Fault and Fire Detection

3.2.1 **Battery rooms**, **battery boxes** or spaces containing a **battery box** shall be fitted with suitable detectors in relation to the:

.1 battery size;

.2 battery power;

.3 cooling system;

.4 fixed fire extinguishing system; and, where installed

.5 mechanical ventilation system.

These shall include smoke, heat and flame detectors, and these shall activate auditory audible and visual alarms in the affected space and at the **control position(s)** or **steering position**(s).

3.2.2 For **lithium-ion batteries**, where it is determined from the risk assessment in Section 2.2.1 of this Annex that accumulation of explosive gases **up to** the **Lower Explosive Limit** (**LEL**) is possible, gas detector(s) able to detect explosive gases likely to be produced by the battery's specific chemistry, or type, shall be fitted in **battery boxes** and **battery rooms**. If the concentration of explosive gas in the **battery box** or **battery room** reaches 60% of the **Lower Explosive Limit** (**LEL**) the battery shall be automatically disconnected, all electrical circuits in the space shall be de-energised, and auditory audible and visual alarms shall be emitted in the affected space and at the **control position(s)** or **steering position(s)**.

For **lead-acid batteries**, where it is determined from the risk assessment in Section 2.2.1 of this Annex that accumulation of explosive gases **up to** the **LEL** is possible, gas detector(s) able to detect explosive gases likely to be produced by the battery's specific chemistry, or type, shall be fitted in **battery boxes** and **battery rooms**. If the concentration of explosive gas in the **battery box** or **battery room** reaches 60% of the **LEL** audible and visual alarms shall be emitted in the affected space and at the **control position(s)** or **steering position(s)**.

3.2.3 Gas detectors in **battery boxes** and **battery rooms** shall be located where gas may accumulate and in the ventilation outlets. A gas dispersal analysis or physical smoke test may be used to identify the most suitable locations for gas detectors.

3.2.4 Toxic gas detectors in **battery room(s)** large enough to be entered shall have gas detectors positioned at breathing height.

3.2.5 It is the responsibility of the **vessel owner/operator** to ensure that **crew** are protected from toxic gases. The **vessel owner/operator** shall develop a risk assessment (see Section 3 and Appendix 7 of the **Code**) which informs the development of safe systems of work.

3.3 Battery Fires

3.3.1 Hand fire pumps and fire buckets shall not be used to extinguish battery fires.

3.4 Fixed Fire Suppression Systems

3.4.1 All **vessels** shall have a fixed fire suppression system installed for **battery boxes** and **battery rooms** in accordance with the battery manufacturer's requirements, and shall be designed in consideration of the potential size and specification of the installed batteries.

3.4.2 A fixed fire suppression system shall either be to the satisfaction of the **Administration** or of an **approved** type appropriate to the **battery box** or **battery room.** A fixed fire suppression system shall be able to prevent heat propagation. For further requirements see sections 16.4.2.2 to 16.4.2.5 of the **Code**.

3.4.4 A powered fixed fire suppression system shall be powered by both main and emergency power. The emergency power source shall not be located in the space(s) it serves.

3.4.5 A fixed fire suppression system shall meet the manufacturer's installation and maintenance requirements and shall be serviced at minimum on an annual interval or as per manufacturer's recommendations, whichever is more frequent.

3.4.6 Control and power, where appropriate, for a fixed fire suppression system shall be located outside of the **battery box** or **battery room**.

3.4.7 Where practicable, due to the design of the fire suppression system, visual and audio alarms shall be activated in the affected space and at the **control position(s)** or **steering position(s)** prior to release of suppression material.

3.4.8 During a **thermal runaway** event active ventilation, where installed, shall continue operating if an explosive atmosphere is present.

3.5 Portable Fire Extinguishers

3.5.1 Portable fire extinguishers may only be used as an alternative if installation of a fixed fire suppression system would constitute a safety risk. Any portable fire extinguishers intended for use in **battery boxes** or **battery rooms** shall be suitable for such purposes, and provide an equivalent level of safety to the satisfaction of the **Administration**.

3.5.2 A minimum of two portable fire extinguishers with a minimum fire rating of 34B (in addition to the requirements of section 16 of the **Code**) shall be readily accessible for the **battery box** or **battery room**. **Vessel owners/operators** shall follow the battery manufacturer's requirements regarding the types of portable fire extinguishers permitted to be used in **battery boxes** and **battery rooms**.

3.5.3 Fire ports designed to allow discharge of hand-held extinguishers into a **battery box** or **battery room** shall be of an equivalent structural standard to the **battery box** or **battery room**. Any opening(s) shall only be used in an emergency and shall be clearly labelled.

3.6 Lithium Battery Mark