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1. Foreword

Introduction

- 1.1 This **Code** applies to **workboats** that operate **to sea**, and to all **dedicated pilot boats** operating either at **sea** or in **categorised waters**.
- 1.2 This **Code** applies to such **vessels in commercial use**, other than when in use for recreational, sport or pleasure, for which there are more appropriate codes.
- 1.3 This **Code** can also be used for barges, pontoons, and similar **small vessels** when under tow, as specified in [section 26](#).
- 1.4 Vessels where **bulk cargo**¹ is loaded into and carried in the vessel's hold or tanks are considered to be small tankers or bulk carriers and shall not be certified under the provisions of this **Code**.
- 1.5 Independent rescue boats, when engaged in commercial use, may use the Rescue Boat Code instead of this **Code**, in accordance with [MGN 466\(M\)](#)², as [amended](#).
- 1.6 Police boats shall meet the requirements set out in The Safety of Police Boats ([Annex 3](#)) in addition to the appropriate requirements of this **Code**.
- 1.7 This **Code** applies to **vessels** operated by **crew**, and to **vessels** with no persons on board operated from a **Remote Operation Centre**. Such **vessels** are treated, by both UK and international law, as a type of cargo vessel and the level of safety and protection for those on board, and/or operating the **vessel** remotely, is considered commensurate with the current expectations of the general public for such **vessels**.
- 1.8 A **vessel** intending to operate as a **Remotely Operated Unmanned Vessel** shall meet the requirements set out in [Annex 2](#) in addition to the relevant sections of the **Code**.
- 1.9 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**.
- 1.10 This **Code** is given legal effect by The Merchant Shipping (Small Workboats and Pilot Boats) Regulations 2023 ("the 2023 Regulations"). The 2023 Regulations set out the legal regulatory framework for the certification and continued compliance of vessels and this **Code** underpins those provisions by providing details of the technical requirements for equipment and practices and procedures to be followed in relation to such vessels. The 2023 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 \(SI 1998/2241\)](#),

¹ Dredging spoil is not deemed "cargo", it is not bulk cargo. But dredging e.g. gravel for bringing back to shore for commercial exploitation is cargo.

² [MGN 466\(M\)](#) [The rescue boat](#) code (the code of practice for open rescue boats of less than 15 metres in length).

instead of the 2023 Regulations and this **Code**. However, the **Maritime and Coastguard Agency** advise that it will be easier to understand, apply and comply with the 2023 Regulations and this Code of Practice rather than the many separate Regulations that would otherwise have to be considered and complied with. It would also mean that **vessels** that comply with the **Code** may additionally be issued with a UK Load Line Certificate.

- 1.11 This is the third edition of the **Code**. It replaces [The Workboat Code Edition 2, as amended](#) which was introduced in December 2018 and also the original Workboat Code titled, [“The Safety of Small Workboats and Pilot Boats – A Code of Practice”](#) that was introduced in 1998. This **Code** applies to **workboats, pilot boats and Remotely Operated Unmanned Vessels**, the keels of which are laid, or are at a **similar stage of construction**, on or after 13 December 2023, the date of entry into force of the **Code**. From that date, this **Code** supersedes the original Code, Workboat Code Edition 2, as amended, and also the use of [MGN 280\(M\) “Small Vessels in Commercial Use for Sport or Pleasure, Workboats and Pilot Boats – Alternative Construction Standards”](#) as applicable to **small workboats** and **pilot boats**.
- 1.12 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.
- 1.13 The following organisations participated in the Industry Working Group that reviewed and contributed to the drafting of this **Code**:
- British Marine
 - International Institute of Marine Surveying
 - Lloyd’s Register
 - Maritime and Coastguard Agency**
 - Mecal
 - Royal Yachting Association
 - Society of Consulting Marine Engineers and Ship Surveyors
 - The Workboat Association
 - Yacht Designers and Surveyors Association
- 1.14 This **Code** provides information needed for the design, construction, engineering, electrical systems, hull systems, fire protection, and provision of firefighting, lifesaving, navigation 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 offsets requirements for manning and the qualifications needed for the **crew**.
- 1.15 Designers, builders, **owners** and repairers of **vessels**, should pay special

3 Application, Interpretation and Certification

The purpose of this section is to set out the application of this **Code** to **workboats** and **dedicated pilot boats**, and the process for certification of these **vessels**.

3.1 Application

3.1.1 This Code applies to **workboats** that operate **to sea**, and to all **dedicated pilot boats** operating either at **sea** or in **categorised waters**. It applies to **vessels** carrying **cargo** and/or not more than an aggregate 12 **passengers** and **industrial personnel**. It applies to **United Kingdom (UK) vessels** wherever they may be, and to non-United Kingdom vessels in UK waters or operating from UK ports whilst in UK waters.

3.1.2 The **Code** does not apply to any vessels that operate underwater, hovercraft or those in use for sport or pleasure.

3.1.3 **New vessels** shall comply with the applicable requirements set out in this **Code**.

Existing vessels with a valid **Workboat Certificate**, issued under the previous versions of the Code named in section [1.11](#), shall comply with the applicable requirements set out in this **Code** on the date or at the time of the examination specified in [Appendix 9](#).

3.1.4 A **vessel** that has been previously certificated under a version of the Codes of Practice named in [section 1.11](#) 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 shall be declared.

3.1.5 A **vessel** to which this **Code** applies, but which exceeds the speed/displacement ratio as defined within [The Merchant Shipping \(High Speed Craft\) Regulations 2022](#) does not need to comply with those regulations, if certificated to the requirements of this **Code**, provided that it carries not more than an aggregate of 12 **passengers** and **industrial personnel**.

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** who may consult with others as it deems appropriate.

3.4 Equivalent Standards

- 3.4.1 Where the **Code** requires that a particular fitting, material, appliance or apparatus must be provided or carried on a **vessel**, or that any particular provision shall be made, to a specified **standard**, 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/operator** wishes to use an equivalent means of compliance to the **Code**, the **Certifying Authority** shall, on behalf of the **vessel owner/operator**, 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 **SWB2** and a copy of the equivalence shall be 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/operator** to ensure that a **vessel** is properly maintained, examined, certified and manned in accordance with the **Code**, the arrangements as documented in the **SWB2** and any conditions stated on the **vessel's Certificate**.
- 3.5.2 It is the responsibility of the **vessel owner/operator** to ensure that the **vessel** is maintained in accordance with manufacturer's recommendations or 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 shall include an ongoing maintenance and inspection regime that ensures the 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 an international **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**⁹ may inspect¹⁰ a certificated **vessel** at any time and the **Administration** may also appoint the **vessel's Certifying Authority** to examine the **vessel** at any time.

⁹Merchant Shipping Act 1995 (Ch. 21), section 258.

¹⁰Merchant Shipping Act 1995 (Ch. 21), section 258.

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 a **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) shall 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 Cat (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** 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**.

3.10.4 A **vessel** engaged in pilotage services shall have either a valid **Pilot Boat Certificate** or a valid **Workboat Certificate** with **Pilot Boat** Endorsement allowing it to operate in the area(s) in which it provides a pilotage service, including areas which are not **to sea**.

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

3.11.1 Where the **owner/operator** of a **vessel** which operates in **categorised waters** and/or a restricted service (according to [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** submit an application to the

Administration to consider certification of the **vessel** in compliance with alternative safety standards.

3.12 Official Log Book

3.12.1 All **vessels** of 25 GT and greater shall carry and complete an Official Log Book¹¹. (See **MIN 698**).

3.13 Carriage of Equipment

3.13.1 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**.

3.13.2 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. If such equipment is inoperative, it shall either be repaired, removed or if removal is not practicable, clearly marked as inoperative and secured.

3.14 Risk Assessment of Operations

3.14.1 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 [section 31](#).

3.14.2 A new risk assessment required by [3.14.1](#) 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.

3.14.3 A risk assessment of all persons on board shall be carried out by the **vessel owner/operator** 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.

3.15 Updating of the Code

3.15.1 A formal review of the **Code** shall be conducted in line with Regulation 26 of the 2023 Regulations. 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.

3.15.2 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**)

¹¹ Official Log Book may be obtained free from charge from 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** certificated **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 weather deck** over the **length** of the **vessel** and shall have a permanent **accommodation space**.
- 5.1.3 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.
- 5.1.4 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 restricted to **area category of operation** 4 and 6 only, however compliance with [5.9.2.6](#) and [5.9.3.4](#) may allow operation in **area category of operation** 3 or 5.
- 5.1.5 An **open boat, inflatable boat, rigid inflatable boat** or **boat with buoyant collar** shall not be permitted to carry **cargo** in excess of 1000 kilogrammes (kg), be fitted with a **lifting device** or be engaged in **towing** operations, unless permitted by the **Certifying Authority**.
- 5.1.6 All **vessels** which are not fitted with a **watertight weather deck** over the **length** of the **vessel** shall be provided with adequate reserves of buoyancy and sufficient stability for the **vessel** to survive the consequences of swamping when loaded with all the **vessel's** equipment, fuel, **cargo**, activity related equipment (e.g. diving equipment) and the number of persons for which it is to be certificated (see [section 12A.3](#)).
- 5.1.7 A **vessel** which is fitted with a **watertight weather deck** over the **length** of the **vessel**, has a permanent and enclosed **accommodation space** and a steering position for the **vessel** within the enclosed space, but does not meet the **freeboard** requirements of section [13.1](#), shall possess a minimum of 10% reserve of buoyancy above the **weather deck** and may be permitted by the **Certifying Authority** for the operations defined in section [5.1.5](#) above, provided the following conditions are satisfied:
- .1 **Freeboard** to the gunwale edge shall meet that required by section [13.1.1](#). **Freeboard** to the **weather deck** shall be positive in all loading conditions;
 - .2 The **recess** bounded by the reserve buoyancy and gunwales shall meet the **standard** for quick-draining **cockpits** for Category A vessels, within

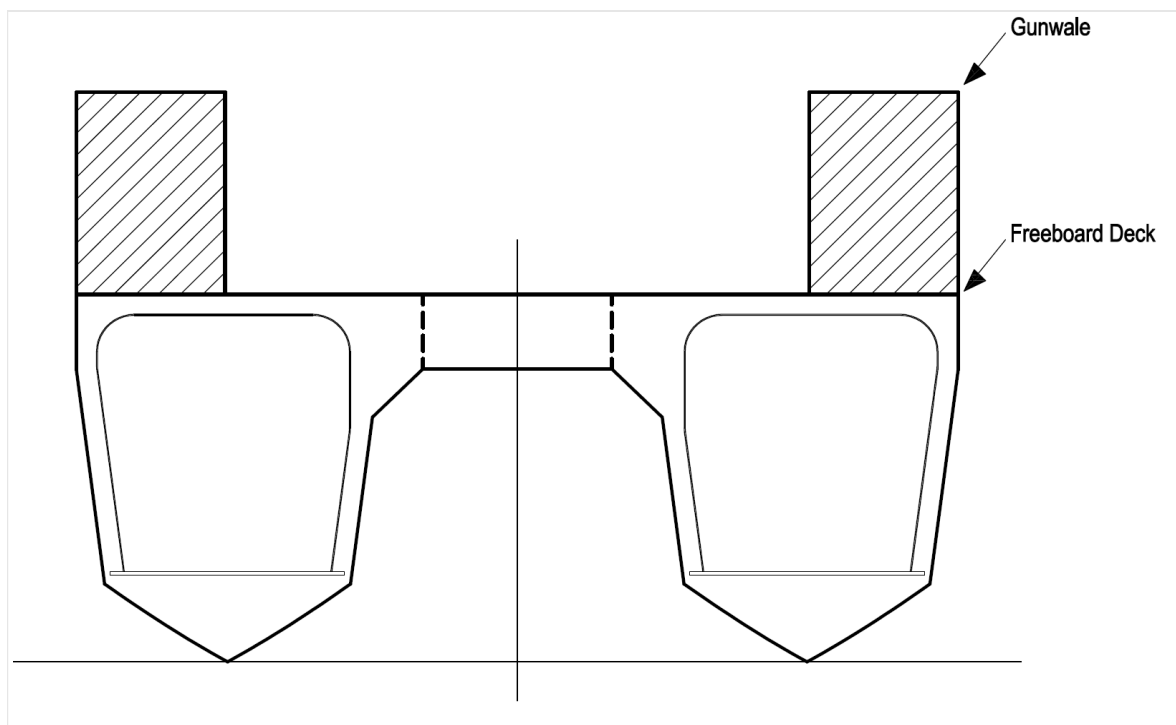
ISO 11812 – ‘Small Craft – **Watertight Cockpits** and Quick- draining **Cockpits**’, or equivalent; and

.3 The **vessel** shall comply with the relevant intact stability criteria (see [section 12](#)).

5.1.8 Figure [5.1.8](#) shows a suitable type of arrangement for the purposes of [5.1.7](#). Shaded areas show buoyancy above the **watertight** deck, in this case at the **vessel** sides, but which may equally be fore and aft.

5.1.9 A **Remotely Operated Unmanned Vessel** is not required to have a permanent **accommodation space**.

Figure 5.1.8



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 [5.9](#).

5.2.1 All **vessels** certificated to operate in **area category of operation 0, 1 or 2** shall be designed and built in accordance with the hull construction standards of a **Recognised Organisation** or equivalent standard or to first principles.

5.2.2 All **vessels** certificated to operate in **area category of operation 3 - 6** shall be designed and built to a **standard**¹⁴ **approved** by the **Administration** for their intended use or comply with higher standards listed in [5.2.1](#).

¹⁴ ISO 12215-5 should be used with caution where the **vessel's** hull or superstructure is fabricated of fibre reinforced **plastic**, or where the **vessel** is subject to impact loading from

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**¹⁵ shall be considered to be of acceptable structural strength, subject to the presentation of a valid certificate of construction to the **Certifying Authority**.

5.3.2 Where a certificate of construction as issued under either [5.2.1](#) or [5.2.2](#) 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 within [3.10.2](#).

5.3.3 A **vessel** which has not been built under the survey of an UK **Load Line Assigning Authority** shall be considered to be of acceptable structural strength after a **compliance examination** by an **authorised person** and if it has a certificate 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 698** and as verified by an Approved 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 Body may also be accepted, or
- .3 in accordance with the hull certification standards for small craft as provided in **MIN 698** with verification of structural strength and build by a **Load Line Assigning Authority** or **Certifying Authority**.

For acceptance under [5.3.3.3](#), the **vessel owner/operator** shall provide the **Load Line Assigning Authority** or **Certifying Authority** with drawings, documents, proof of analysis to the hull certification standards for small craft as provided in **MIN 698**, the safety factors used, the maximum permissible combined stress and actual calculated stress. Responsibility for 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.

contact with fixed structures such as offshore wind farm turbine towers, or the **vessel** is a **multihull**, until such time that it is updated with respect to commercial vessels.

¹⁵ 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.

- 5.3.5 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 an existing certificate issued under one of the Codes of Practice as per [1.11](#), appropriate to the **area category of operation** the vessel is to be issued a certificate for, or
 - .2 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 or combinations of such materials.
- 5.4.2 Proposals to use any other material shall 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 [5.4.1](#). When 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](#)).
- 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 Recesses¹⁶

- 5.5.2.1 A **recess** in a **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 angle of 10 degrees (°). Such drainage is to have an effective area, excluding grills and baffles, of at least 20 square centimetres (cm²) per cubic metre of volume of the **recess**.

¹⁶ For water freeing arrangements, see [section 6](#) and, for **freeboard** requirements, see [section 13](#).

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. 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.

5.6.4.2 For **existing vessels** transitioning from the Brown Code; where a **vessel** has a door fitted in a **watertight bulkhead** which is required to be kept open whilst the vessel is at **sea**, the door shall be of a power operated sliding watertight construction to the approval of the **Administration**. The door shall have controls which are local to the door and from a location(s) above the bulkhead deck, at which locations an 'open/closed' indication shall be provided. A door closure warning indicator shall be provided at the door.

5.7 Offshore Energy Service Vessels

5.7.1 The hull and attached structures of Offshore Energy Service Vessels shall be designed and constructed to withstand imposed static and dynamic loads typically expected for this type of operation. The structure shall be robust with scantlings equal to or greater than those typically required from a recognised Classification Society.

5.8 Lifting and Towing

5.8.1 Where an **owner/operator** intends to use a **vessel** for **towing** or the **vessel** is fitted with a **lifting device**, then the **Certifying Authority** shall verify that the structure of the vessel and any associated fittings used in the activity of **towing** or lifting is suitable and sufficiently strong for the intended use, including when operating at the maximum capacity of any **lifting device**. See also Sections [25](#) and [26](#) for additional requirements for **towing** and/or **lifting devices**.

5.8.2 The breaking strength or maximum working loads of any item of equipment or of the hull structure itself shall be made available to the **vessel owner/operator** and displayed in the vicinity of the equipment. The breaking strength of lines/chains shall in general not exceed 80% of the breaking strength of the respective strong point.

Any **modifications** that are undertaken shall be verified by the **Certifying Authority**. (See **MIN 698**¹⁷).

5.8.3 Equipment manufacturer's instructions on installation, operation and maintenance shall be followed as required by [LOLER](#) and [PUWER](#) Regulations. Where equipment **standards** are not specified in the **Code** the **Certifying Authority** shall set an appropriate equivalent standard.

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

5.9.1 General

¹⁷ The relevant chapters of the [CoSWP](#) are Chapter 18, 19 and 26.

- 5.9.1.1 The following requirements apply to a **boat with a buoyant collar**, an **inflatable boat** or **rigid inflatable boat**, other than a tender (dinghy) covered by [section 24](#).
- 5.9.1.2 The requirements of [5.3 - 5.6](#) also apply to a **boat with a buoyant collar**, an **inflatable boat** or **rigid inflatable boat**, as appropriate.
- 5.9.2 Boats with a Buoyant Collar and Rigid Inflatable Boats in Area Category of Operation 2 or 3**
- 5.9.2.1 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 intends 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.
- 5.9.2.2 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**.
- 5.9.2.3 **Inflatable boats** are not 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.
- 5.9.2.4 A **boat with a buoyant collar** or a **rigid inflatable boat** may only be certified for operations in **area category of operation 2**, if it has a permanent and enclosed **accommodation space** for all persons on board and the **vessel** has a steering position for the **vessel** within the enclosed space.
- 5.9.2.5 A **boat with a buoyant collar** or a **rigid inflatable boat** may only be certified for **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**.
- 5.9.2.6 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](#).
- 5.9.3 Boats with a Buoyant Collar, Inflatable Boats and Rigid Inflatable Boats in Area Categories 4, 5 and 6**
- 5.9.3.1 A **boat with a buoyant collar**, an **inflatable boat** or a **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 the **MIN 698**, **approved** by the **Administration** for their intended use.

- 5.9.3.2 Instead of complying with [5.9.2.1](#) the structure of the rigid hull of a **rigid inflatable boat** and a **boat with a buoyant collar** may meet the requirements of section [5.3](#) Certificate of Construction.
- 5.9.3.3 A **boat with a buoyant collar** or a **rigid inflatable boat** may only be certified for **area category of operation 5** (night time operations), if fitted with a **substantial enclosure** for the protection of persons on board, subject to approval by the **Certifying Authority**. A **substantial enclosure** can 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.
- 5.9.3.4 For **area category of operation 5** only, alternative operating procedures for night time operations without a **substantial enclosure** to that in [5.9.3.3](#) may be considered, with operational/seasonal limitations using the provisions of [Appendix 1](#). Such cases should be subject to approval by the **Certifying Authority**.
- 5.9.3.5 An **inflatable boat** may 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.

5.9.4 Construction and Materials

- 5.9.4.1 For **vessels** complying with section [5.9.2.4](#), 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.
- 5.9.4.2 For all **vessels**, materials shall satisfy the requirements of the **standards** recognised by the **Administration**, against which they have been assessed.
- 5.9.4.3 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**.
- 5.9.4.4 A new **boat with a buoyant collar, inflatable boat** or **rigid inflatable boat** which is not built in accordance with either section [5.9.2.4](#), [5.9.2.5](#), [5.9.2.6](#) or [5.9.3.4](#) may be specially considered, provided that its 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** 698).

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.

6.2.2 Doorways which are 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, 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, the top of which is at least 300 mm above the adjacent **weather deck**.

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 sea¹⁸. A portable coaming shall be marked, “Not to be removed at sea”.

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, operable 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 Hatchways¹⁹ and companion hatch openings

6.2.4.1 Where washboards are used to close a vertical opening they shall be arranged and fitted so 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 [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 [13.1](#)), or the sea inlet valves fitted with remote closing devices.

Existing vessels transitioning from the Brown Code are not required to meet 6.2.4.4.

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.

6.2.5 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:

¹⁸ A trough or a **recess** which is 300mm deep immediately adjacent to the accessway does not satisfy this requirement.

¹⁹ For **cargo** hatchways, reference shall be made to section [25.1.4](#).

- .1 kept as small as practicable, but never more than 1 square metre (m²) 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 [6.2.4.5](#).

6.3 Skylights, Windows and Portlights

For the purpose of this Code, skylights, portlights and windows are collectively referred to as windows.

- 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 or International Standards or Classification Society Rules. (See **MIN** 698).
- 6.3.7 For a **vessel** certificated to operate in **area category of operation** 0, 1, 2 or 3, unless the glazing material 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 breakage of the glazing.
- 6.3.8 Where a window below the **weather deck** can be opened it shall be fitted with a deadlight or provided with a portable **blank**.
- 6.3.9 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**.
- 6.3.10 A portlight shall not exceed 250 mm diameter or equivalent area.
- 6.3.11 A window which is capable of being opened and is located below the **weather deck** shall be marked, "Not to be opened at sea".
- 6.3.12 Windows used for navigational purposes shall not have their visibility impaired by polarised or tinted glass.

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 similar fitting attached to the side of the **vessel** below the waterline, within a **machinery space** or other high fire risk area, and essential system piping shall be of steel, bronze, copper, or other non-brittle fire-resistant material.

6.4.1.2 Materials with a melting point below 1000°C shall not be used for fire mains, hydrants, valves or cocks.

Fittings 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 shall only be used where the design and construction of the pipe 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 Class requirements and **IMO A.753(18) as amended** for guidance. When **plastic** piping or flexible²⁰ 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 cargo pipes carrying flammable liquids unless:

- .1 the plastic pipes meet the requirements of ISO 15540 or **IMO A.753(18)**; and
- .2 the exhaust hosing meets the requirements of the **standard** accepted by the **Administration** (see **MIN 698**); and
- .3 the **plastic** pipes are fitted within the **machinery space** of **vessels** certified to operate in **area category of operation** 0, 1 or 2, the shut off valve shall be operable from outside of the **machinery space**; or
- .4 the **plastic** pipes are fitted within the **machinery space** of **vessels** certified to operate in **area category of operation** 3, 4, 5 or 6, the shut off valve may be located on the pipe within the **machinery space**.

6.4.2 Sea Inlets and Discharges

²⁰ 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.

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 permitted on a case-by-case basis by the **Administration** (see MIN 698).

8.7.2 The **vessel owner/operator** shall demonstrate that an appropriate level of safety is provided to the satisfaction of the **Administration** which shall include verification that the machinery and associated systems have been installed in accordance with UK authorised **Recognised Organisation** standards.

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 For air start systems there shall be 2 air receivers each with sufficient capacity to allow 6 consecutive starts of a cold engine. Design, maintenance, inspection and testing of compressed air start systems shall be in accordance with an appropriate **Recognised Organisation** standard.

8.8.4 Where air receivers are fitted in a **machinery space(s)** or other areas identified to increase risk of fire acceleration, the system shall be designed so any release of air through the pressure relief valves or bursting discs that may occur during a fire is vented to the open air.

8.8.5 Air receivers which vent to the **machinery space** may be approved in exceptional cases by the **Certifying Authority** on a case-by-case basis. The volume of compressed air which can be released into the **machinery space** shall be considered in the calculation(s) used to assess the required quantity of firefighting medium, subject to approval of the **Certifying Authority**. See Section [16.4](#).

8.9 Automatic Shutting Down of Propulsion Systems (Kill Cords)

The following section covers the means of preventing injury in the event of a person(s) unintentionally entering the water whilst the propeller is running, such systems are often referred to as kill cords but other technologies exist which achieve the same objective.

8.9.1 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 shall be fitted with a kill cord which shall be securely attached to the helmsperson and used at all times whilst the engine is running and in gear.

- 8.9.2 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 shall have either:
- .1 a spare kill cord on board; or
 - .2 a kill system which is capable of override; or
 - .3 a sprung loaded throttle to return to idle in lieu of meeting the requirements of [8.9.1](#).
- 8.9.3 A **Certifying Authority** may accept alternative provisions that are at least as effective as those set out in [8.9.1](#) and [8.9.2](#) where the **owner/operator** of any **inflatable boat, rigid inflatable boat, boat fitted with a buoyant collar, open boat**, or other **vessel** where there 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 the helmsperson falling overboard.
- 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** (see **MIN 698**).
- 8.10.2 **Hazardous spaces**²¹ 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 a **machinery space**. The means of closure shall be positioned 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. A manual override on a **Remotely Operated Unmanned Vessel** may only be used if the **vessel** is alongside in port or out of the water.
- 8.10.4 Where the engine(s) oil fuel 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 698**).
- 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.

²¹ The number and extent of **Zone 0** and **Zone 1 hazardous spaces** on a vessel shall be kept to a minimum.

8.11.3 Short lengths of flexible fuel pipes may only be permitted where necessary to allow for movements and vibration between fixed fuel pipes and fuel tanks or fuel consumers.

Flexible fuel pipes shall be:

- .1 fire resistant, metal reinforced or protected from fire (see applicable standards in **MIN 698**);
- .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. 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. The date of fitting and date for renewal shall be recorded on the **SWB2**.

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 fires²².

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 by 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:

- .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 (ID) of 11 mm if the filling pipe runs directly and near vertically to the top of the tank and has a minimum ID 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**.

²² 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.

8.12 Fuel tanks

- 8.12.1 All fuel tanks shall be constructed and installed to an appropriate **standard**. (See **MIN 698**).
- 8.12.2 All fuel tanks shall be constructed of a fuel and corrosion resistant material.
- 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.
- 8.12.4 A rigid aluminium fuel tank(s) shall not be fitted within a **machinery space(s)** or form part of the **machinery space** boundary.
- 8.12.5 For an existing vessel transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code, 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 risks.
- 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's** boundaries.
- 8.12.7 For an **existing vessel** transitioning from **MGN 280** or the Brown Code, fitted with a rigid **plastic** fuel tank(s) within a **machinery space(s)**, the tank's installation and use shall, where practicable, mitigate against the potential of any additional fire risks.
- 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 698**).
- 8.12.10 A petrol tank(s) or a spare portable petrol container(s) (see section [8.12](#)) shall be protected from any damage, secured to the **weather deck** and capable of being quickly released.
- 8.12.11 A petrol tank(s) must not be filled or decanted whilst the **vessel** is **at sea**.

8.13 Stowage of Spare Petrol

- 8.13.1 Where it is essential to carry spare petrol for the use of the **vessel** and its equipment it shall not be classed as **cargo**.
- 8.13.2 Spare petrol shall be:
- .1 carried in a maximum of two 5 litre portable 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 containers which are ventilated.

8.13.3 Where it is impracticable to meet the petrol stowage requirements of [8.13.2.2](#) 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 [15.4.2](#).

8.14 Pipes Carrying Flammable Liquids or Gases through Accommodation Spaces

8.14.1 Pipes carrying flammable liquids or gases shall not pass through **accommodation spaces**. Where this is unavoidable it may be permitted on a case by case basis subject to approval of the **Certifying Authority** provided that the following are met:

- .1 pipes shall be constructed of seamless 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 have 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 have 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 are 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-rated²³ fans shall be installed;
 - .5 Hydrocarbon (HC) gas/vapour detection are fitted within the vapour-proof enclosure or cofferdam;
 - .6 Pipes located behind linings are fitted within a vapour-proof enclosure;

²³ 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.

- .7 Pipe systems are 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 Pipes that pass through bulkheads, decks or deckheads these penetrations are sealed with an approved bulkhead gland and insulated in accordance with the required bulkhead division or class.

8.14.2 **Existing vessels** transitioning from **MGN 280** or the Brown Code shall meet the requirements of [8.14.1](#) at the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

8.15 Noise and Vibrations

8.15.1 A **vessel owner/operator** shall meet the requirements for the protection of all persons 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 698**).

8.15.2 A **vessel owner/operator** shall meet the requirements for the protection of all persons 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 698**).

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 **standard(s)** as listed in **MIN 698**.
- 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.
- 9.1.3 All exposed non-current carrying conductive parts of both fixed and portable electrical equipment which may, under fault conditions, become live (including similar parts inside non-metallic enclosures) are to be connected to earth unless the equipment is:
- .1 supplied at a voltage not exceeding 50 V direct current or 50 V root mean square between conductors, achieved without the use of auto-transformers;
 - .2 supplied at a voltage not exceeding 250 V by safety isolating transformers supplying only one consuming device; or
 - .3 constructed in accordance with the principle of double insulation (Class II) as per IEC 61440 or equivalent insulation intended to prevent the appearance of dangerous voltages on its accessible parts due to a fault in the basic insulation.

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 For lighting distribution in **accommodation** and working spaces, the lighting shall be distributed on different final circuits to maintain a level of lighting in case of failure of a single distribution circuit.
- 9.2.3 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code shall meet the requirements of [9.2.2](#) at the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.
- 9.2.4 The design and placement of lighting shall preserve the night vision of Navigation Watchkeepers.
- 9.2.5 For **vessels** carrying out deck operations at night, an appropriate level of light shall be provided for those areas.

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 a charge indicator.

9.3.1.4 **Existing vessels** transitioning from **MGN 280** or the Brown Code shall meet the requirements of [9.3.1.3](#) at the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

9.3.1.5 All back up batteries shall be fully charged prior to departure.

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

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 collect 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. Where 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.

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

9.3.2.5 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code shall meet the requirements of [9.3.2.3](#) and [9.3.2.4](#) at the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

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

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 being manoeuvred from the **control 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 **control position** in all conditions of loading so as to avoid impeding the maintenance of a proper lookout as required by the **COLREGS. Remotely Operated Unmanned Vessels** shall have a proper lookout provided by visual and auditory readouts from cameras and sensors (including radar, where fitted) which are replicated at the **Remote Operation Centre**.

10.1.3 A **vessel owner/operator** and all **crew** shall be aware of and respond appropriately to the dangers of interaction between vessels. (See **MIN 698**).

10.2 Steering System

10.2.1 The steering system may either be direct or remote control. A remote-control system shall be a means that can control both the **vessel's** heading and propulsion.

10.2.2 Primary steering systems shall comply with an appropriate **standard** for small craft steering systems. (See **MIN 698**).

10.2.3 When the steering system is remote control, arrangements shall be made for emergency steering in the event of failure of the primary steering system.

The emergency steering shall be demonstrated in the form of an emergency drill to the approval of the **Certifying Authority**. A **Remotely Operated Unmanned Vessel** is required to have emergency steering.

When steering gear is fitted with remote control, arrangements should be made for emergency steering in the event of failure of the control. Arrangements may take the form of the following, and be to the satisfaction of the **Certifying Authority**:

- .1 a tiller to fit the head of the rudder stock;
- .2 a rod attachment which may be fitted to a Z-drive framework;
- .3 a steering oar;

- .4 in the case of twin-screw **vessels** manipulation of power distribution between the drives. In the case of twin stern-drive arrangements, means shall be provided to lock the drives in the midships position; or
- .5 in the case of a **vessel** fitted with outboard engine(s), a means to control the direction of thrust.

10.2.4 If emergency steering is totally impractical the **vessel** shall be restricted to **area category of operation 4, 5 or 6**. A **Certifying Authority** may accept alternative provisions and/or procedures that are at least as effective as those set out in [10.2.3](#) where the **owner/operator** of any **vessel**, demonstrates to the **Certifying Authority** the ability to maintain directional control over the **vessel**.

10.3 Rudder System

10.3.1 Where fitted, the design, construction and fittings of a rudder system shall be to an appropriate **standard** to the approval 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** 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 a 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 A bilge suction valve of a permanently installed bilge pump shall be of a non-return type.
- 11.1.4 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code 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 To prevent pollution, any space containing potential pollutants shall not be fitted with any auto-start bilge pumps.
- 11.1.7 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code shall meet the requirements of [11.1.6](#) at the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.
- 11.1.8 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.
- 11.1.9 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 bilge pump and one engine driven or independently powered bilge pump, which shall be situated in each separate space. If two powered pumps are provided, they shall be powered by independent sources. All pumped spaces shall be capable of being drained after the failure of one pump.

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 Brown Code a person may be considered to weigh a minimum of 75 kg. Where an **existing 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](#).

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 **cargo** exceeding 1,000 kg
- .4 **vessels** carrying cargo where the **cargo** element may create a free surface effect which may affect the stability of the **vessel**;
- .5 **vessels** fitted with a **lifting device(s)** including **vessels** engaged in dredging activities (see [12B.4](#)). For the purposes of 12.1.1.3, 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 on the stability of the **vessel**;

- .6 **vessels towing** where the displacement of the towed vessel or floating object is greater than twice the displacement of the **towing vessel**, except where the towing vessel tows the towed object or floating object side by side in accordance with [26.1.1.2](#). or pushes/pulls the towed object in accordance with [26.1.1.3](#). See section [12B.5](#); or
- .7 seagoing **pilot boats**.

For guidance on the content and structure of a Stability Information Booklet and the stability assessment see [Appendix 3](#).

12.1.1.4 **Existing vessels** transitioning from Brown Code which are not currently required to be provided with a Stability Information Booklet are not required to be provided with a Stability Information Booklet under this **Code**. Where an **existing vessel** has its stability re-assessed the new stability assessment shall be conducted in line with the stability requirements of [Section 12](#).

12.1.1.5 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](#).

12.1.1.6 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 these 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 **vessel** 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**.

12.1.1.7 Where a **vessel** has been modified from the condition that was subject to the previous stability assessment, the **vessel owner/operator** shall inform the **Certifying Authority** who may undertake a lightship or **freeboard** check. If the lightship or **freeboard** has significantly changed, then the **Certifying Authority** shall conduct a full stability analysis.

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**.

12A.2 Intact Stability: Vessels Complying with Simplified Stability Assessment

12A.2.1 A **vessel** shall be tested in the fully loaded condition(s)²⁴ 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 does 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 13.1.1](#).

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 metres in **length** the heeling moment applied during the test required in [12A.2.1](#) shall be calculated using the following formula:

$$GM = \frac{57.3 \times HM}{\theta \times \Delta}$$

where:

²⁴ For vessels carrying a combination of **passengers, industrial personnel**, activity related equipment and **cargo**, for which the **cargo** element does not exceed 1000 kg the test shall be carried out with the **maximum permissible weight**, and additionally with **passenger plus industrial personnel** weight only. The **cargo** and activity related equipment shall be assumed to be retained at its normal stowage position.

HM = No. 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 **passengers, industrial personnel, crew**, equipment and **cargo** (kg)

Note: Weight of persons shall be taken in accordance with [12.1.1.1](#), and **Cargo** 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**.

Where displacement of the **vessel** is estimated:

$$\Delta = C_B \times LOA \times Moulded \text{ Beam} \times Load \text{ Draught} \times 1.025$$

Where:

C_B = Block coefficient

LOA = Vessel length overall

The **Certifying Authority** shall approve the value of C_B used.²⁵

12A.2.5 **Vessels** complying with any option of section 5.3 of ISO 12217 Part 1 (see **MIN** 698) may as an alternative, after verification of the stability assessment by **the Certifying Authority**, be assigned an **area category of operation** in accordance with the following [Table 12A.2.5](#):

Table 12A.2.5 – 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

²⁵ In the case of doubt C_B of 0.9 can be used for pontoons etc. or 0.67 for other vessels.

12A.2.6 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.²⁶

12A.3.1 General

12A.3.1.1 The tests detailed in [12A.3](#) shall be carried out on a **vessel** floating in still 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.3.2 Stability Test Criteria

12A.3.2.1 The stability tests detailed in [12A.3.3](#) – [12A.3.5](#) shall be carried out with all the **vessel's** equipment, fuel, **cargo**, activity related equipment and the maximum number of persons the **vessel** is certificated to carry on board. The engine, equipment and cargo 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 **cargo** 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's** equipment, fuel, **cargo**, activity related equipment and the maximum number of persons the **vessel** is certificated to carry. The engine, equipment and **cargo** may be replaced by an equivalent mass.

12A.3.3.2 The damage test(s) shall be carried out:

²⁶ 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](#).

- .1 with forward buoyancy **compartment** deflated (both sides where appropriate); and
- .2 with the entire buoyancy **compartment** from the centre line at the stem to the transom on one side deflated.

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 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;
- .4 **cargo**;
- .5 activity related equipment; and
- .6 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](#)– [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 approved lifejacket;
- .3 where the water temperature requires, the third person shall wear suitable anti-exposure clothing (see [14.5](#)); and
- .4 the **vessel** shall remain stable and not capsize.

12A.4 Stability of Vessels Engaged in Towing where the displacement of the towed object is less than or equal to twice the displacement of the towing vessel

All **vessels** engaged in **towing** where the displacement of the towed object is less than or equal to twice the displacement of the **towing vessel** shall comply with requirements of [12A.4](#) in addition to applicable requirements of [12A.1](#)- [12A.3](#) (see [Table 12A.2.5](#)).

12A.4.1 **Open boat(s)**, other than those approved to carry over 1000 kg in **cargo** under [section 5.1.5](#), are unsuitable for **towing** other vessels or floating objects other than by side by side towing in accordance with [26.1.1.2](#) or by push/pull towing in accordance with [26.1.1.3](#).

Open boats may only tow vessels more than twice their displacement side by side in harbour areas and in **area categories of operation** 5 and 6, in **favourable weather**.

12A.4.2 The stability of a **vessel** engaged in **towing** where the displacement of the towed object is less than twice the displacement of the **towing vessel** shall be considered satisfactory where the following conditions are met:

- .1 in the normal working condition, the **freeboard** is such that the deck edge is not immersed at an angle of less than 10°; and
- .2 the heel test shall have the following result:

$$\frac{wd}{LBTp \tan(\phi)} \geq \frac{0.076 K}{f}$$

Where:

K = 1.524 + 0.08L - 0.45r

L = Length of **vessel** between perpendiculars (metres)

B = Beam of **vessel**

T = Draught of **vessel** in fully loaded condition

r = Length of radial arm of **towing** hook (metres) (distance from **towing** hook to point of attachment on the **towing vessel**)

f = **Freeboard** (metres)

ρ = Density of sea water

θ = Heel angle from heel test

w = Weight moved for heel test

d = transverse distance moved by weight for heel test.

- .3 the heel test shall be carried out in small increments in both directions. The average resultant heel angle shall be noted for the average heeling moment wd.

12A.4.3 Where the calculation detailed in [12A.4.2](#) is not appropriate, a more comprehensive stability analysis shall be completed using the appropriate criteria from [Section 12B](#) to satisfy the **vessel owner/operator**'s responsibility to provide a safe working environment.

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**, vessels operating in **area category of operation 0** and 1 carrying 7 or more persons, subject to minimum safe manning levels being agreed by the **Certifying Authority**, and **Remotely Operated Unmanned Vessels** operating in **area category of operation 0** and 1.

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

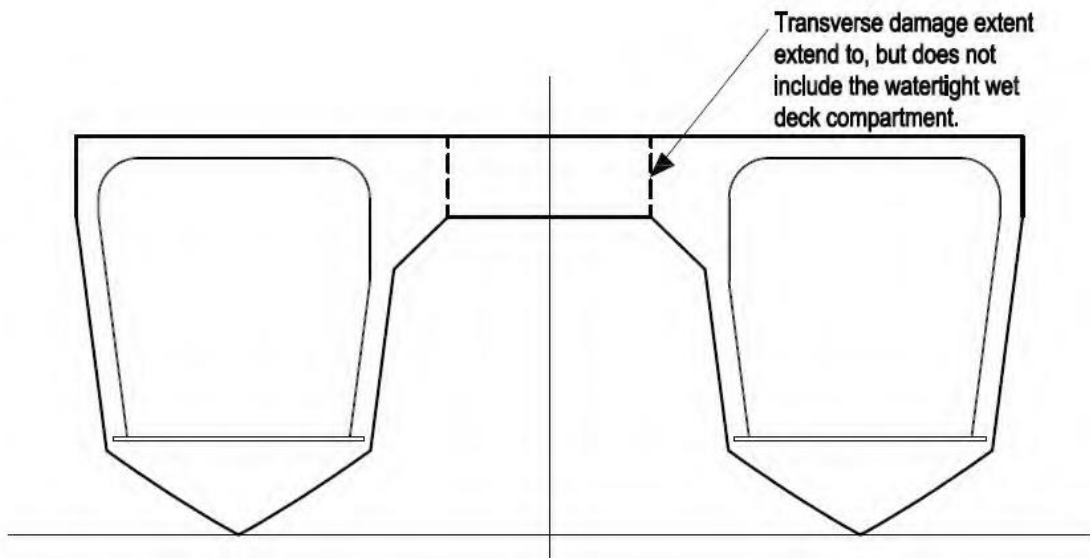
12B.1.1.1 In assessing survivability, the following standard permeabilities shall be applied:

Space	Permeability %
Appropriated for stores	60
Appropriated for stores but not by a substantial quantity thereof	95
Appropriated for accommodation	95
Appropriated for machinery	85
Appropriated for liquids	0 or 95 whichever results in the more onerous requirements

12B.1.1.2 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.

12B.1.1.3 A **Certifying Authority** may approve alternative methods of assessing damage survivability that are at least as effective as the options set out in [12B.1.1.2](#).



12B.1.1.4 **Multihull vessels** shall be fitted with **engine spaces** that are separated by a **watertight** bulkhead.

Existing vessels transitioning from **MGN 280** or the Brown Code, where the requirement to have separation by a **watertight** bulkhead is impracticable, are not required to meet [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 lever within that range is not less than 100 mm;
- .4 the area under the curve is not less than 0.015 metre 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 watertight 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.

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.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. There shall be a minimum of 8 weight movements. The use of an electronic inclinometer²⁷ is an acceptable alternative to the second pendulum provided it is calibrated and readings are recorded.

Guidelines for the procedure on carrying out of an inclining experiment can be found in the Instructions for [the Guidance of Surveyors on Load Line \(MSIS 1\), Part 6](#). Where it is impracticable to adopt the procedures given in [MSIS 1](#) any deviations to the number of pendulums or repetitions of the inclining experiment shall be agreed by the **Certifying Authority**.

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 suitable 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 the margin of growth will not affect the safety of the **vessel**. The margin for growth shall not be used in practice to increase maximum **cargo**-deadweight.

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;
- .4 Conditions involving lifting appliances (where appropriate).

12B.3.5 Where a **vessel** is permitted to carry **cargo** exceeding 1,000 kg 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.

²⁷ Where an electronic device is used it shall be demonstrable that the output resolution and tolerance is suitable for the application.

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 be not less than 0.055 metre-radians **up to** 30 degrees angle of heel and not less than 0.09 metre-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 this is less than 40 degrees, shall be not less than 0.03 metre-radians;
- .3 GZ shall be at least 0.20 metres 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 metres.

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 metre-radians **up to** θ_{GZmax} when $\theta_{GZmax} = 15^\circ$ and 0.055 metre-radians **up to** θ_{GZmax} when $\theta_{GZmax} = 30^\circ$.

θ_{GZmax} is the angle of heel in degrees at which the righting lever curve reaches its maximum.

When the maximum GZ occurs between $\theta = 15^\circ$ and $\theta = 30^\circ$ the required area under GZ **up to** θ_{GZmax} shall not be less than:

$$A = 0.055 + 0.002(30^\circ - \theta_{GZmax}) \text{ metre-radians.}$$

- .2 the area under the righting lever curve (GZ curve) between $\theta = 30^\circ$ and $\theta = 40^\circ$ or between $\theta = 30^\circ$ and the angle of downflooding (θ_f), if this angle is less than 40° , shall not be less than 0.03 metre-radians;
- .3 GZ shall not be less than 0.2 metre at an angle of heel 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 metre.

12B.3.10 For any new **vessel**, built within 5 years of the original **vessel**, with known differences from a sister ship²⁸, a detailed weights and centres calculation to adjust the lead **vessel's** lightship properties shall be carried out.

²⁸ A sister ship is defined as a **vessel** built under the survey of a **Certifying Authority**, by the same yard from the same plans and within five years of the original **vessel**.

The lightship properties for the **new vessel** may be assessed by carrying out a lightweight check. The deviation in lightship displacement shall not exceed 2% of the lightship displacement of the sister ship. In addition, the deviation in lightship LCG shall not exceed 1% of the LBP of the sister ship LCG. Where the deviation is within these limits the actual lightship weight and LCG derived from the lightship check shall be used in conjunction with the higher of either the 'lead' sister ship's VCG or the calculated value. Where the deviation exceeds either of these limits, an inclining test shall be carried out.

The requirement for an inclining test may be dispensed with in cases where the margins on intact and damage stability are sufficient to permit minor changes in VCG subject to the satisfaction of the **Certifying Authority**.²⁹ Where the **vessel's** inclining data are based on a lightship check the inclining report for the 'lead' sister ship shall be included in the stability information.

12B.3.11 Barges or pontoons which:

- .1 are non-self-propelled;
- .2 are un-manned;
- .3 carrying deck **cargo** only;
- .4 have a block coefficient of 0.9 or greater;
- .5 have a breadth to depth ratio of more than 3; and
- .6 have no hatchways in the deck except small openings which are closed with gasketed covers

may use the following stability criteria³⁰ in lieu of either [12B.3.8](#) or [12B.3.9](#):

- .1 the area under GZ **up to** the angle of maximum GZ shall not be less than 0.08 metre-radians;
- .2 the static angle of heel due to a uniformly distributed wind load of 540 Pa (wind speed 30 m/s) shall not exceed an angle corresponding to half the **freeboard** for the relevant loading condition, where the lever of the wind heeling moment is measured from the centroid of the windage area to half the draught;
- .3 the maximum range of stability shall be at least 20°.

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

²⁹ The **vessels** must be similar in all respects and the **Certifying Authority** must be satisfied with the procedure and accuracy of the original inclining. Small **modifications**, for which an accurate assessment by calculation may be taken into account, are acceptable.

³⁰ **IMO** International Code of Intact Stability, 2008

satisfied that the device does not have detrimental effect on the stability of the **vessel**.

12B.4.2 A **decked vessel** fitted with a **lifting device(s)** shall meet the requirements of sections [12B.1](#) and/or [12B.3](#) where appropriate.

12B.4.3 A **vessel** fitted with a **lifting device(s)** operating at its maximum load and heeling moments³¹ shall demonstrate to the satisfaction of the **Certifying Authority**, by practical test or calculation(s), compliance with one of the following:

- .1 the angle of heel of the **vessel** shall not exceed 7° or an angle of heel which results in a minimum **freeboard** to deck edge of 250 mm anywhere on the periphery of the **vessel**, whichever is the lesser angle; or
- .2 where the angle of heel is greater than 7° but does not exceed 10° the following criteria shall be met:
 - .1 the range of stability from the angle of equilibrium to downflooding or angle of vanishing stability, whichever is the lesser, is equal to or greater than 20°; and
 - .2 the area under the righting lever curve (GZ curve), **up to** 40° from the angle of equilibrium or the downflooding angle, if this is less than 40°, is equal to or greater than 0.1 metre-radians;
 - .3 the minimum **freeboard** to deck edge at side, measured at Aft perpendicular (A.P.) and Forward perpendicular (F.P.) throughout the lifting operations shall not be less than half the assigned **freeboard** to deck edge at side amidships. For **vessels** with less than 1000 mm assigned **freeboard** to deck edge amidships the **freeboard** at A.P. or F.P. at deck edge shall not be less than 500 mm; and
 - .4 the **freeboard** to deck edge anywhere on the periphery of the **vessel** is at least 250 mm; or
 - .5 a **vessel** which is unable to comply with the requirements of section [12B.4.2](#) or if fitted with a lifting system which incorporates either counterbalance weight(s) or counter ballasting may be permitted on a case-by-case basis. Where the **Certifying Authority** considers the **vessel** to have adequate residual stability application for special consideration shall be submitted to the **Administration**.

12B.4.4 At a minimum the following shall be included in the Stability Information Booklet:

- .1 the maximum permitted load and outreach which satisfy the requirements of section [12B.4](#) or the Safe Working Load (SWL), whichever is the lesser;

³¹ Consideration should be given to the operating performance of variable load–radius type **lifting devices**, and the load moment for **lifting devices** situated off the centre line of the **vessel**.

12B.5 Stability of Vessels Engaged in Towing where the displacement of the towed vessel or floating object is more than twice the displacement of the towing vessel

All **vessels** engaged in **towing**, where the displacement of the towed vessel or floating object is more than twice the displacement of the **towing** vessel, shall comply with requirements of section [12B.5](#) in addition to applicable requirements of [12B.1](#)- [12B.4](#) (see [Table 12A.2.5](#)).

[Section 12B.5](#) does not apply where:

- .1 the **vessel** engaged in towing 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; or
- .2 the **vessel** engaged in towing fore and after 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.

12B.5.1 A Stability Information Booklet shall include loading conditions for **towing**.

12B.5.2 It is the responsibility of a **vessel owner/operator** to ensure that an inclining test(s) and calculation(s) of the lightship particulars are:

- .1 undertaken by a **competent person(s)**; and
- .2 with an independent witness, approved by the **Certifying Authority**, who can attest that the conditions and the manner in which the test(s) are conducted are satisfactory.

12B.5.3 The stability of a **vessel** engaged in **towing** where the displacement of the towed vessel or floating object is more than twice the displacement of the **towing vessel** shall be considered satisfactory where the heeling lever does not exceed 0.5 times the maximum GZ for the critical loading condition.

Heeling Lever

$$= \frac{(0.6 \times \text{Max. bollard pull} \times \text{Vertical distance between hawser and centre of the propeller(s)})}{\text{Displacement}}$$

The height of the hawser shall be measured as follows:

- .1 where a fixed gog is always used the height of the hawser shall be measured at the fixed gog or side rails if higher; and
- .2 where a fixed gog is not always used the height of the hawser shall be measured at the top of the winch drum (with no towline deployed) or the side rails if higher.

Where the maximum GZ occurs at a greater than 30° angle of heel, the value of GZ at 30° of heel shall be substituted.

12B.5.4 **Vessels** the keel of which is laid or which is at a **similar stage of construction** on or after 1 January 2020 may comply with section 2.8 of Part B of the **IMO's**

13 Freeboard and Freeboard Marking

The purpose of this section is to set out requirements for minimum **freeboard** and **freeboard** markings.

13.1 Minimum Freeboard for vessels which carry 1000 kg or less of cargo

Section [13.1](#) applies to **vessels** which carry **cargo, passengers, industrial personnel**, or any combination thereof, for which the **cargo** element does not exceed 1000 kg, and which are not **rigid inflatable boats, inflatable boats** or **boats fitted with a buoyant collar**.

- 13.1.1 The minimum **freeboard** requirements shall be met by either:
- .1 complying with ISO 12217³⁵. 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 [Table 13.1.2](#) as appropriate; or
 - .3 complying with the requirements of [the Merchant Shipping \(Load Line\) Regulations 1998 \(SI 1998 No. 2241\)](#), **as amended**.
- 13.1.2 The **freeboard** for a **vessel** shall be calculated with the **vessel** in sea water, upright, in its normal trim and fully loaded with weights to compensate for both **cargo** and non-**cargo** deadweight items as certificated to be carried (the weight of each person taken to be 82.5kg).

13.2 Minimum Freeboard for Vessels which carry greater than 1000 kg of Cargo

Section [13.2](#) applies to **vessels** which carry **cargo, passengers, industrial personnel**, or any combination thereof, for which the **cargo** element exceeds 1000kg, and which are not **rigid inflatable boats, inflatable boats** or **boats fitted with a buoyant collar**.

- 13.2.1 **Vessels** to which [13.2](#) applies must comply with [the Merchant Shipping \(Load Line\) Regulations 1998 \(SI 1998 No. 2241\)](#), **as amended**³⁶.

³⁵ ISO 12217 'Small Craft – Stability and buoyancy assessment and categorisation' Part 1

³⁶ 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.

[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 698**).

13.3.2.1 Where the **Certifying Authority** considers that the addition of a scale of draught marks is not practicable, an application for exemption from this requirement shall be submitted to the **Administration**.

13.3.2.2 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 marking 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 538 \(M\) as amended](#), the assigning letters shall be U on the left and K on the right.

13.3.3 **Existing vessels** transitioning from the Brown Code and **MGN 280** shall meet the requirements of [13.3.2.2.3](#) by the **vessel's** next **renewal examination** or three years after the date in entry into force of the **Code**, whichever is later.

13.3.4 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.

13.3.5 A **freeboard** mark for Fresh Water Allowance is not required.

13.3.6 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.

13.3.7 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.

13.3.8 **Existing vessels** transitioning from the Brown Code shall meet the requirements of [13.3.6](#) and [13.3.7](#) by the **vessel's** next **renewal examination** or three years after the date in entry into force of the **Code**, whichever is later.

13.4 Rigid Inflatable Boats, Inflatable Boats and Boats Fitted with a Buoyant Collar

Section [13.4](#) defines the requirements for **rigid inflatable boats, inflatable boats and boats fitted with a buoyant collar**.

13.4.1 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, **cargo, 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).

13.4.2 **Vessels** operating in **area category of operation** 4, 5 or 6, which do not meet the **freeboard** requirement of section [13.4.1](#) 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%).

13.4.3 Where the **vessel** is certified to carry more than 1000 kg of **cargo** 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 13.1.1](#));
- .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 **SWB2** and the **maximum permissible weight** shall be recorded on both the **SWB2** on the **Certificate** for the **vessel**.

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 A.658 (16), as amended**³⁸:

- .1 liferafts;
- .2 lifebuoys;
- .3 lifejackets; and
- .4 thermal protective aids (TPA).

14.1.2 The minimum required life-saving appliances are given in Table [14.1.2](#) below.

14.1.3 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code may continue to use their current life-saving appliances until the appliances reach end of life. All replaced life-saving appliances shall comply with the requirements of [Section 14](#).

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. The only exception are valise liferafts 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 **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.

14.2.1.3 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 a maximum of annual intervals at a service station approved by the manufacturer.

³⁸ **IMO Resolution A.658(16) – Use and Fitting Of Retro-Reflective Materials On Life-Saving Appliances"**

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)	<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) Note B		100%	100%	100%	100%	100%	100%	100%
Inflatable lifejacket rearming kit (see 14.4.5) Note B		None	None	None	None	100%	100%	100%
Thermal protective aids (TPA) (see 14.5) Note B		See 14.5.2	100%	100%	100%	100%	100%	100%
Portable VHF ³⁹⁴⁰ (see 17.4)		1	1	1	1	1	1	1

³⁹ SOLAS 'A' PACK requirements can be found in [MSN 1676 \(M+F\)](#) as amended.

Note A – Parachute flares, red hand flares, smoke signals, and other pyrotechnics shall be **MER** approved (“Wheelmarked”) or shall comply with [MSN 1676 \(M\)](#) **as amended**. Hand held smoke signals need not be approved to the **MER** or [MSN 1676 \(M\)](#), **as amended**.⁴²

Note B – 100% means that one of this item shall be provided for each person on board.

14.2.2 Stowage of liferafts

14.2.2.1 Liferafts shall:

- .1 be stowed on or above the **weather deck** as appropriate to **vessel’s** design and intended operation, to prevent loss of the raft in a sea way, such that they float free⁴³, inflate and break free automatically, with the exception of valise liferafts which shall be stored in a dedicated locker readily accessible from the **weather deck**;
- .2 be safely accessible by the **crew** 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 time⁴⁴;
- .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.

14.2.2.2 Other stowage and release mechanisms may be considered if they provide an equivalent level of safety to the satisfaction of the **Administration**.

14.2.2.3 **Vessel owners/operators** shall demonstrate physical deployment⁴⁵ of liferafts:

- .1 at compliance or **renewal examinations**;
- .2 where any changes are made to the liferaft type/capacity; and

⁴² [MSN 1676 \(M+F\)](#) **as amended**. – Merchant shipping life-saving appliances regulations

⁴³ The liferaft retaining strap must be capable of being released quickly and easy, e.g. by senhouse slip.

⁴⁴ For further details please see [MGN 343 Hydrostatic release units: stowage and arrangements for liferafts](#).

⁴⁵ For further details please see [MGN 343 Hydrostatic release units: stowage and arrangements for liferafts](#).

- .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, or the appropriate procedures for deployment of a gravity assisted deployment.

14.2.3 Float Free Arrangements for Liferrafts

14.2.3.1 Re-useable HRUs shall be serviced annually or 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 recommendations, 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-**MER** 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**; or
- .2 **area category of operation 1** carrying 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 **area category of operation 1** and carrying fewer than 16 persons or certified to operate in **area category of operation 2, 3, 4, 5 or 6** shall be provided with sufficient liferaft capacity to accommodate, at a minimum, the total number of 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](#).

14.3 Lifebuoys

14.3.1 Lifebuoys shall:

- .1 not be of an inflatable type;
- .2 be marked with two means of identifying the **vessel** (including **vessel's** name);
- .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 length⁴⁶.

14.4 Lifejackets

14.4.1 Lifejackets shall be constructed to:

- .1 **SOLAS** standard and **UKCA** or **MER** approved, or **MCA DfT** approved;
- .2 BS EN 396 or BS EN ISO 12402, Part 3 for lifejackets of 150 Newtons;
- .3 BS EN 399 or BS EN ISO 12402, Part 2 for lifejackets of 275 Newtons (see **MIN 698**); or
- .4 any other equivalent standard **approved** by the **Administration**.

14.4.2 All lifejackets shall be fitted with a whistle and retro-reflective materials.

14.4.3 For **vessels** operating in **area categories 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 32kg). 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, 1, or 2, shall carry an appropriate rearming kit for each lifejacket on board.

14.4.7 Vessels operating in **area categories of operation** 0,1 or 2 shall carry an appropriate spray hood for each lifejacket on board.

Vessels operating in **area categories of operation** 3, 4, 5 or 6 may carry an appropriate spray hood for each lifejacket on board.

14.4.8 Lifejackets which are only inflated orally are not permitted.

14.4.9 Inflatable jackets shall be serviced⁴⁷ in accordance with the manufacturer's recommendations within a maximum of one month either side of the **compliance, renewal** and **intermediate examinations**.

⁴⁶ Guidance on lifebuoy buoyant lines and grablines can be found in [MGN 106 \(M+F\)](#).

⁴⁷ See either [MGN 548](#) or [MGN 553](#) for further guidance on the servicing of inflatable lifejackets

Table 14.2.5.1 — Liferaft requirements

Requirements for liferafts	Vessels in area category of operation				
	0	1	2 - 3	4 - 5	6
Construction	Constructed to SOLAS standard and UKCA or MER approved, or MCA DfT approved	Constructed to SOLAS standard and UKCA or MER approved, or MCA DfT approved, or be built to the ISO 9650 ^{Note E} – Small Craft Inflatable Liferrafts, Part 1, Type 1, Group A standard and certified ^{Note D} to Part 3 of ISO 9650.			Constructed to SOLAS standard and UKCA or MER approved, or MCA DfT approved; or be built to the ISO 9650 – Small Craft Inflatable Liferrafts, Part 1, Type 1, Group A standard and certified to Part 3 of ISO 9650; or may be the open reversible type, constructed to IMO High Speed Craft Code 2000 standard and MER 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	

- 14.4.10 Certification of servicing shall be submitted to the **Certifying Authority** at the **compliance** or **renewal examination**.
- 14.4.11 Not more than two different types of lifejacket are permitted on any **vessel**. 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 provided that there are no differences between the donning instructions.
- 14.4.12 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**.

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 **Vessels** operating in **area category of operation** 6 which carry a canopied liferaft are exempt from the requirement of [14.5.2](#).
- 14.5.4 TPAs shall be **UKCA** or **MER** approved.
- 14.5.5 TPAs should be stowed in the **grab bag**.
- 14.5.6 Where **immersion suits** are provided for all on board, as part of the **vessel's** equipment (see [section 22](#)), only 2 TPAs need to be provided for the use of injured persons.
- 14.5.7 Where a **vessel** carries an **immersion suit(s)**, they must be compatible with the lifejackets provided. **Immersion suit(s)**:
- .1 may be of the non-insulated type.
 - .2 shall be compatible with the lifejackets provided.
 - .3 may be provided to satisfy the personnel clothing requirements of section [22.2.6](#).

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, 1 or 2; 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 examinations**. See **MIN 698**.

14.8 Training Manual

14.8.1 A **vessel's** training manual shall be stowed at a **control 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 the donning of lifejackets;
- .4 the use of sea anchors;
- .5 the recovery of persons from the water;
- .6 the illumination in launching areas;
- .7 the boarding, launching, and clearing the survival craft from the **vessel**;
- .8 the "Personal Survival at Sea" booklet, e.g. **MCA Booklet MCA/075**;
- .9 the best use of all survival equipment including equipment on survival craft;
- .10 the use of all aids to location;
- .11 the instructions for emergency repair of the life-saving appliances; and
- .12 the 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.

14.9 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**, 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 Where sufficient training and instruction on the maintenance of life-saving appliances has been provided to the crew, the **vessel owner/operator** of an **open boat, inflatable boat, rigid inflatable boat, or boat with a buoyant collar** may keep the instruction manual on shore.
- 14.9.3 **Vessels** operating on a **bare-boat charter** 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 Signals⁴⁸. This shall be in the form of either one **SOLAS** No. 1 poster, or two **SOLAS** No. 2 posters.
- 14.11 Drills, Training and Recording of Drills**
- 14.11.1 On board training including practice fire and abandon **ship** drills shall be regularly routinely carried out by the **crew**. For **vessels** over 25 GT this shall be recorded in the Official Log Book in accordance with the requirements of [SI 1999/2722](#) (see also [MGN 71](#)).
- 14.11.2 Means of recovery of persons and physical deployment of each liferaft from water drills shall be regularly routinely carried out and recorded, see [MGN 544⁴⁹](#).
- 14.11.3 All **crew** on **vessels** shall have familiarisation training on Life-Saving Appliances and emergency procedures on board to ensure that they are able to respond effectively in emergency situations.

⁴⁸ Alternatively, [MCA Leaflet "Life Saving Signals 2021"](#) may be posted in the **wheelhouse**.

⁴⁹ MOB drills shall be carried out in a range of **daylight**, low light e.g. dusk and weather conditions, which shall be noted in the Official Log Book and reviewed to the satisfaction of the **Certifying Authority**.

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 becoming major fires and in the event of the 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.

15.1 Machinery space

15.1.1 General

15.1.1.1 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code may continue to use their current equipment until the appliances reach end of life. All replaced appliances shall comply with the standards of [Section 15](#).

15.1.1.2 The **machinery space** shall be capable of being isolated to minimise the risk of fire extinguishing medium escaping.

15.1.1.3 Where practicable, **existing vessels** transitioning from the Brown Code shall meet the requirements of [15.1.1.2](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

15.1.1.4 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; and
- .5 any other equipment in areas identified to increase risk of fire acceleration.

15.1.1.5 Where practicable, **existing vessels** transitioning from **MGN 280** shall meet the requirements of [15.1.1.2](#), [15.1.1.4](#) and [15.1.1.7](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

15.1.1.6 Where practicable, **existing vessels** transitioning from the Brown Code shall meet the requirements of [15.1.1.4](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

15.1.1.7 Systems fitted with automatic fans which stop in the event of a fire shall have a manual override.

15.1.1.8 Where practicable, **existing vessels** transitioning from the Brown Code shall meet the requirements of [15.1.1.7](#) by the **vessel's** next **renewal**

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** and shall be of a non-combustible material(s)⁵¹.

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
- .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 [15.1.3.1.1](#) – [15.1.3.1.4](#)) where high heat items pass through hull, decks or bulkheads.

15.1.3.2 **Vessels Carrying 16 or More Persons or in Area Category of Operation 0 or 1, or when the total installed Power Exceeds 750 kW per machinery space**⁵²

⁵¹ 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 the IMO International Code for application of Fire Test Procedures (**FTP Code** 2010), Part 1, Non Combustibility Test (see **MIN** 698).

⁵² For a **vessel** with separate **machinery spaces**, each space can be considered separately in interpretation of total installed power provided that any common connecting service duct is fitted with a structural fire barrier to prevent the passage of smoke and flame in either direction for a period of 15 minutes.

- 15.2.5 Combustible materials, and other surfaces, which do not have a surface spread of flame rating, shall not be left located 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.
- 15.2.6 Curtains, or any other suspended textile materials, shall not be within 600 mm of any open flame appliance.
- 15.2.7 Materials which are closer than as described in [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 698**.
- 15.2.8 Open flame appliance(s) shall be inspected by a Gas Safe Registered marine qualified technician (or equivalent recognized body if outside the UK) and shall be issued with a safety certificate. Inspections shall be carried out annually or following installation.

15.3 Liquid Fuel Appliances

- 15.3.1 **Liquid fuel** appliances shall only run on **diesel**.⁵⁵

Where this is not practicable, alternative fuels 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; and
- .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.

⁵⁵ **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**. See **MIN 698**.

- 15.3.3 Fuel tanks, fuel pipes and their installation for appliances shall be fitted in accordance with the requirements of sections [8.9](#) - [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**.
- 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 space containing **liquid fuel** appliance(s) shall be capable of being isolated by means of a valve(s) operated from outside of the space.
- 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 are set out in [Appendix 2B](#).
- 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.

shall be fitted in accordance with the manufacturer's instructions for detection⁵⁶. See **MIN 698**.

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)** be capable of being heard with doors closed, machinery running and in all anticipated weather and operational conditions.

15.6.3.3 A CO detector(s) shall be provided in spaces where exhaust gases may accumulate in the event of an exhaust leak.

15.6.4 Hydrocarbon Gas Detection

15.6.4.1 Any space which contains gas consuming appliances or into which flammable gas may be 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 698**)

15.7 Means of Escape

15.7.1 All **vessels** shall have means of escape.

15.7.2 All escape routes shall be located so that a single hazardous event is not likely to cut-off all escape routes.

15.7.3 Any identified means of escape shall not endanger any person using it.

15.7.4 Any means of escape shall be clearly marked for its purpose on both sides, and the function of each escape route shall be practically demonstrated to the satisfaction of the **Certifying Authority**.

15.7.5 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 metres of the entrance at all times;
 - .3 the entrance gives ready escape, at all times, in the event of fire.

15.7.6 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.

⁵⁶ CO detection is not required when heating or cooking is undertaken using electrical **cookers** or heaters.

15.7.7 The **Certifying Authority** may approve exceptions to [15.7.5](#) only where compliance with 15.7.5 would diminish the overall safety of the **vessel**. These shall be considered on a case by case basis, subject to approval of the **Certifying Authority**.

15.8 Fire Control and Safety Plan

15.8.1 **Vessels** shall have a fire control and safety plan(s) which shall be prominently displayed at the **control position(s)**.

15.8.2 The fire control and safety plan(s)⁵⁷⁵⁸ 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.

15.8.3 The fire control and safety plan(s) shall be kept **up to date**.

⁵⁷ Symbols used on the fire control and safety plan(s) shall comply with a recognised international **standard** where applicable.

⁵⁸ **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 fires and in the event of the 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 the **machinery spaces** and outboard engines

Engine position	Criteria	Minimum Protection
Outboard engine(s) ^{d)}	$P \leq 220 \text{ kW}$ ^{a)}	1 portable fire extinguisher 34B
	$P > 220 \text{ kW}$	Portable fire extinguisher(s) total B capacity= $0,3P$ ^{b)}
Inboard Diesel engine(s)	$P < 120 \text{ kW}$	1 multi-purpose fire extinguisher ⁵⁹ of appropriate size located adjacent to the main entrance of each machinery space ^{e)}
	Engine located in engine box above deck	Portable fire extinguisher(s) to fire port ^{c)} or Fixed fire extinguishing system according to 16.4 .
	Engine compartments below deck	Fixed fire extinguishing system according to 16.4 ^{e)} .

^{a)} P is the aggregate power rating in kW of the engine(s) in the space.

^{b)} Example: For 1 × 220 kW outboard engine the required minimum rating is $220 \times 0,3 = 66\text{B}$ which corresponds to two 34B extinguishers.

^{c)} 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**.

^{d)} 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.

⁵⁹ 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.

renewal examination or three years after the date of entry into force of the **Code**, whichever is later.

16.3.1.8 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).

16.3.2 Carbon Dioxide (CO₂) Fire Extinguishers

16.3.2.1 Portable carbon dioxide (CO₂) fire extinguishers may only be located in **accommodation spaces**⁶³ 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 (CO₂) 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**.

16.3.2.4 Portable carbon dioxide fire extinguishers shall meet the requirements of an appropriate **standard**. See **MIN** 698.

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 Systems

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 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**⁶⁴; and

⁶³ If a graphical symbol is used, it must be explained in the owner's manual.

⁶⁴ For further requirements for the installation of fixed firefighting systems see [MSN 1666 \(M\)](#), **as amended**.

- .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 698**);
 - .4 pressure water spraying;
 - .5 water mist/water fog;
 - .6 vapourising fluids (hydrofluorocarbons - HFCs);
 - .7 aerosols (solid pyrotechnic type) (see **MIN 698**).
- 16.4.1.5 **Existing vessels** transitioning from **MGN 280** or the Brown Code fitted with a fixed fire extinguishing system which uses low expansion foam may continue to use their current system until the system reaches end of life. All replaced fixed fire extinguishing systems shall comply with the standards of [Section 14](#).
- 16.4.1.6 Where activation of the fixed fire extinguishing system is automatic, or the cylinders containing extinguishing media are located within the **machinery space**, a visual alarm shall be displayed outside the **machinery space** and at the **control position(s)** during discharge of fire extinguishing media.
- 16.4.1.7 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code shall meet the requirements of [16.4.1.6](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.
- 16.4.2 Fire Pumps**
- 16.4.2.1 All **vessels**, unless meeting the provisions of [16.4.2.3](#) 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 **Existing vessels** transitioning from **MGN 280** or the Brown Code shall meet the requirements of [16.4.2.1](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.
- 16.4.2.3 **Open boats, inflatable boats, rigid inflatable boats** and **boats with a buoyant collar** of less than 8 m **length** not fitted with a **substantial enclosure** are exempt from the requirement of [16.4.2.1](#)

16.4.2.4 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.

16.4.2.5 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 698**.

16.5.2 A fire blanket shall be located in any area identified by the **Certifying Authority** to increase the risk of fire acceleration and shall be accessible for immediate use.

16.6 Fire Buckets

16.6.1 Where practicable or deemed necessary⁶⁵ 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.

⁶⁵ Larger **vessels** carrying multiple fire extinguishers and/or fixed fire extinguishing system(s) are considered to exceed the minimum required 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 maritime distress and safety communications (see also **MIN 698**):

- .1 Ship-to-shore distress alerts/calls by two independent means;
- .2 Shore-to-ship distress relay alerts/calls;
- .3 Ship-to-shore, shore-to-ship and ship-to-ship search and rescue co-ordinating 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](#).

17.2.3 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code shall meet the requirements of [17.2](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

17.3 **Radio Installation**

17.3.1 Where practicable, aerials shall be mounted on the highest point on the **vessel**. 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** shall consider alternative radio communications such as Medium Frequency (MF) or mobile satellite communications systems. **Vessel owners/operators** shall consider Table [17.2.1 Note C](#) 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).

17.3.6 Where batteries are used for the electrical supply to radio equipment, an alternative power supply shall be provided by either charging facilities which shall be capable of recharging batteries to required minimum capacity within 10 hours, or a back-up battery of capacity sufficient for the voyage.

17.3.7 The battery electrical supply to radio shall be located in a position not likely to flood in normal operations or in the event of minor damage to the **vessel**, and shall 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.

17.3.8 When fully charged, the batteries shall provide at least the minimum required hours of operation to ensure effective use of the GMDSS installation.

17.4 **Portable VHF Radio**

17.4.1 A **vessel** shall carry at least one portable VHF radio fitted with a Digital Selective Calling (DSC) facility. See **MIN 698**.

- 1 Number required to be fitted.
- Note A Vessels 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 B This is recommendatory only in Sea Area A1 for **area category of operation** 4, noting that the **vessel** should be on a voyage of <12 hours, outside this duration a NAVTEX shall be fitted.
- Note C Within UK waters no listening watch is conducted on MF by HM Coastguard, therefore alerting via MF DSC would be required.
- Note D For guidance on iridium satellite distress system, see **MIN** 698.
- R Recommended for **area category of operation** 5 where visual or other non-GMDSS means of alerting is considered to be ineffective e.g. if a vessel is working in bays with high cliffs that may impede the operation of the VHF.
- 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](#)).
- 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 procedures 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 metre 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 portable 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 per liferaft.
- 17.4.9 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN** 280 or the Brown Code shall meet the requirements of [17.4.8](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.
- 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 Manned 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.
- 17.5.3 All EPIRBs shall be maintained in accordance with the manufacturer's recommendations. Batteries shall be replaced as required by a manufacturer approved service station.
- 17.5.4 All EPIRBs shall meet the mandatory registration requirements as detailed in [MGN 665 \(M+F\)](#), as amended⁶⁶. See **MIN 698**.

17.6 Personal Emergency Radio Devices

- 17.6.1 A **vessel** shall meet the 406 MHz Personal Locator Beacon (PLB^{67, 68}) carriage requirements of the [Table 17.2.1](#). For guidance on PLBs see **MIN 698**.
- 17.6.2 A PLB equipped with GPS and a light shall be worn by at least one **crew** member whilst on open deck. Any **crew** not wearing a PLB are strongly recommended to wear a Class M VHF DSC MOB (Man Overboard) with AIS⁶⁹ and a light.
- 17.6.3 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code shall meet the requirements of [17.6](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

17.7 Test 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 the manufacturer's instructions. Additionally, for **Remotely Operated Unmanned Vessels** testing shall be carried out following any power or communications outage either on the **Remotely Operated Unmanned Vessel** or at the **Remote Operation Centre**.

⁶⁶ [MGN 665 \(M+F\) Registration of EPIRBs and 406 MHz PLBs used in the maritime environment](#).

⁶⁷ 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.

⁶⁸ 406MHz PLBs and VHF DSC devices shall be registered with the EPIRB Registry, details of which are given in [MSN 1 816 \(M+F\) 406 MHz Beacons: registration requirements MGN 665 \(M+F\) Registration of EPIRBs and 406 MHz PLBs used in the maritime environment](#)

⁶⁹ The MMSI number can be programmed into this device so that the first alert is sent immediately to the **vessel**, alerting **crew** to the Man Overboard situation and also potentially reducing the possibility of false alerts. If the VHF/DSC is not responded to by someone on the **vessel** within a designated time period, other vessels in the area will be alerted. The inbuilt AIS will enable other vessels in the area equipped with AIS to locate any casualty in the water. A casualty can be located to an accuracy of 100m

Vessels of 12 **up to** 20 metres shall have a masthead light range of at least 3 **miles**. **Vessels** of 20 to 24 metres shall have a masthead light range of at least 5 **miles**.

- d 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.

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.

19.2 Compass

19.2.1 A **vessel** shall be fitted with a properly adjusted suitable magnetic marine compass with consistent deviation⁷².

19.2.2 Any alternative arrangements to [19.2.1](#) (e.g. a Transmitting Magnetic Heading Device) may be considered on a case-by-case basis and approved at the discretion 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)**; 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 steering position; and
- .2 means shall be provided for taking bearings as nearly as practicable over an arc of the horizon of 360 degrees.⁷³

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; or

⁷² 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**.

⁷³ 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, or the recorded deviations are excessive or when the compass shows physical defects.

19.2.5 In a steel **vessel** it shall be possible to correct a magnetic compass for coefficients B, C and D and heeling error.

19.2.6 A record of a **vessel's** compass deviations shall be maintained.

19.2.7 For **vessels** certified 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 Charts⁷⁴ and nautical publications shall be kept up to date and accessible for the entire duration of the voyage.

19.3.2 **Vessels** certified to operate in **area category of operation** 6 only are not required to comply with [19.3.1](#).

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 plotting 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** 698). A radar reflector shall be fitted on the **vessel** in accordance with the manufacturer's instructions.

⁷⁴ See also [MGN 293 \(M+F\) Alternative arrangement for paper chart requirements on MCA code vessels under 24 metres in length and fishing vessels under 24 metres 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 shall not put **to sea** in fog, and if visibility starts to deteriorate, they shall return to shore.
- 19.6.3 If the radar cross sectional area of the boat is larger than the passive reflector standard then the carriage of a reflector is not required.
- 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 position 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 3 cm radar on an appropriate **standard (MIN 698)** shall be fitted. Radars for **vessels** designed to operate at speeds over 30 knots shall comply with the **MER**. Where radar is equipped with automatic target tracking then a suitable transmitting heading device shall be fitted⁷⁵; and
 - .4 a suitable Automatic Identification System (AIS) transceiver (see **MIN 698** for installation and maintenance guidelines).
- 19.7.2 **Existing vessels** transitioning from **MGN 280** or the Brown Code shall meet the requirements of [19.7.1](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

⁷⁵ 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](#), complying at least with the specifications required by the SeaFish Industry Authority (SFIA), see also section [19.3.4](#) and [MGN 319 as amended](#).

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.

21.1.2 Stowage lockers containing heavy items shall have lids or doors which can be securely fastened.

21.1.3 Mechanical ventilation shall be provided to all **accommodation spaces** below the **weather deck**:

.1 where an air conditioning system(s) is not fitted;

.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.

Such mechanical ventilation shall provide at least 6 changes of air per hour when the access openings to the spaces are closed.

21.1.4 Where a **vessel** is fitted with a galley there shall be secure and hygienic storage for food and garbage in the vicinity. See **MIN 698**.

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.

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 shall 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**. [This section](#) sets out the minimum requirements for accommodation and recreational facilities which are either:

- additional to those of the **MLC**; or
- alternatives to the requirements of the **MLC** which are specific for **workboats** less than 24 m in **Load Line Length**.

A model format for a **Seafarer** Employment Agreement can be found in [MGN 477 \(M\) Amendment 4](#), 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 piped to 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 cases⁷⁹ 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 200GT 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

⁷⁹ 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 within **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.

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 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 shall, where appropriate, 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 is 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 a non-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 A means for preventing **seafarers** from falling out of their bunk shall be provided where appropriate.
- 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 if the water seal of the toilet is broken.
- 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.2.2.11 **Existing vessels** transitioning from **MGN 280** or the Brown Code shall meet the requirements of [21B.2.2.1](#), [21B.2.2.2](#) and [21B.2.2.3](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.
- 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 and it remains the responsibility of the **vessel owner/operator** to comply with the requirements of these regulations (see **MIN 698**).

22.1 Health and Safety at Work

22.1.1 All **vessels** shall comply with the applicable 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 698**.

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 may be on board the deck of a **vessel**, the **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 where fitted, the distance between the lowest course of guardrails or taut guard wires and the deck shall not exceed 230 mm;
- .4 where fitted, 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 [22.2.2.1](#) – [22.2.2.4](#), 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, additional guardrails shall be fitted so that there is no unprotected vertical opening greater than 500 mm in width.

22.2.2.6 Alternative arrangements to requirements of [22.2.2.2](#) and [22.2.2.4](#) may be accepted for the following, subject to approval by 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 impractical or unnecessary; or
- .2 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** 698.

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 where handrails would mitigate any identified risk.

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 and toeholds 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**.

22.2.3 Safety Harness

Section [22.2.3](#) does not apply **open boats**, **boats with a buoyant collar**, **inflatable boats** and **rigid inflatable boats**.

22.2.3.1 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.

22.2.3.2 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 the perimeter of a **deckhouse**; and
- .5 other locations where a fastening point(s) would mitigate the risk of falling overboard.

22.2.3.2 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code shall meet the requirements of 22.2.3.2 by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

22.2.4 **Safe location aboard open boats, boats with a buoyant collar, inflatable boats and rigid inflatable boats**

22.2.4.1 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.

22.2.5 **Slip Resistant Surfaces**

22.2.5.1 The surface of a working deck including any hatch coverings shall be finished in; slip resistant deck paint, chequered plate, unpainted wood, a non-skid pattern moulded into FRP, or an **efficient** non-slip covering.

22.2.5.2 In an **inflatable boat** or **rigid inflatable boat** the upper surface of the inflatable buoyancy tube shall be provided with a slip resistant finish.

22.2.6 **Personal Clothing**

22.2.6.1 Each person on board a **vessel** shall have:

- .1 protective clothing appropriate to the prevailing air and sea temperatures that provides protection from precipitation and spray from the sea; and
- .2 footwear with slip resistant soles.

22.2.6.2 **Vessels**⁸⁰ operating in **area category of operation** 0, 1 or 2 and in waters of sea surface temperature of 10 degrees Celsius or less shall provide an **immersion suit** (see [14.5.6](#)), a dry suit or other **efficient** garment (such as a floatation suit meeting EN ISO 15027-1) for each person on board.

22.3 **Safety and Transfer of Personnel**

22.3.1 All persons shall have a safe, clear access to the embarkation station.

22.3.2 A designated embarkation area shall have sufficient hand holds, foot holds and/or grab rails to allow safe access.

22.3.3 A safety briefing shall be provided prior to departure to all persons engaged in transfer operations. See [section 31 SMS](#).

⁸⁰ Sea temperature data may be found in sources such as the Admiralty Pilot for a given sea area and period.

22.3.4 Ambient sea conditions and whole body vibration shall be continually assessed throughout the voyage.

22.3.5 Individual ergonomic seating shall be provided for all persons on board **vessels** operating at **high speed** or in a planing mode (see [section 25.4](#)). A comprehensive risk assessment shall be carried out to identify and implement appropriate mitigation measures to reduce the effects and impacts of vibration including but not limited to: seat belts, headrests, footrests, movable armrests and shock absorbent seating.

22.3.6 **Existing vessels** transitioning from **MGN 280** or the Brown Code shall either:

- .1 meet the requirements of [22.3.5](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later; or
- .2 provide a risk assessment to the satisfaction of the **Certifying Authority** which details the justification for not needing to meet the requirements of 22.3.5.

22.4 Industrial Personnel Requirements

22.4.1 Before commencing any voyage, the **Master** shall ensure that any **industrial personnel**:

- .1 are engaged and on board for transport for the purposes of **offshore industrial activities**;
- .2 are able bodied and meet appropriate medical standards;
- .3 have received basic safety training, according to relevant industry standards;
- .4 have an understanding of the layout of the ship and the handling of the **vessel's** safety equipment before departure from port (e.g., through a safety briefing);
- .5 are equipped with appropriate Personal Protective Equipment (PPE) suitable for the risks to safety such personnel are likely to experience on the forthcoming voyage (e.g., **immersion suits**);
- .6 declare any quantities of **dangerous goods** carried onboard as personal effects, and stow these as appropriate.

22.4.2 **Industrial personnel** that do not meet all of the requirements of [22.4.1](#) may be transported as **passengers**, subject to an overall limit of 12 **passengers** being carried within the total number of persons on board.

22.5 The Code of Safe Working Practices for Merchant Seafarers

22.5.1 An updated copy of the **MCA's** publication [The Code of Safe Working Practices for Merchant Seafarers](#), as amended shall be available at the **control position** at all times.

22.5.2

Where it is not practical to carry the publication on board the **vessel** due to its design, [The Code of Safe Working Practices for Merchant Seafarers](#), **as amended** may be kept ashore. In such cases it shall be available for use by all members of the **crew**.

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 categories 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** 698).

23.1.2 A **vessel owner/operator** 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 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.⁸¹

23.1.4 A **vessel** certificated for operation in **area category of operation** 0 or 1 shall carry an annually reviewed checklist of the medical stores kept on board.

23.1.5 A **vessel** which meets the requirements of [23.1.1.3](#) shall carry medical stores stored in a sealed kit, which shall be reviewed as part of the **vessel's annual examination**.

23.1.6 Where carrying a specific item(s) is impractical 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 [23.1.4](#).

23.1.7 If the **vessel** carries **dangerous goods**, the **vessel's owner/operator** shall ensure that the additional requirements in [section 29.9](#) are met.

23.2 Medical Care on Board a Vessel

23.2.1 The **vessel owner/operator** shall ensure the **crew** of the **vessel** comply with the first aid training requirements set out in [Appendix 5](#) of this **Code**, [Table A5.3](#). See also **MIN** 698.

⁸¹ 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.

24 Tenders and Daughter Craft

The purpose of this section is to define permitted use and requirements for **vessels** to operate as mother vessels, Type 1, Type 2 or Type 3 tenders which may otherwise referred to as a daughter craft, and ensure a level of safety for tenders which are launched and recovered from mother vessel(s) or shore/platform based facilities.

24.1 Mother Vessels

24.1.1 A mother vessel is any vessel which leads, serves, or carries tenders, and may provide a **safe haven** for a Type 1 Tender.

24.1.2 Where a mother vessel or shore/platform-based facility carries its tender(s) onboard, it shall have lifting equipment capable of safely launching and recovering the tender in any sea or weather conditions anticipated in the mother vessel's intended area of operation or in the location of the shore/platform based facility.

24.1.3 Where a mother vessel is a **vessel** certificated under the **Code**, it shall comply with [The Lifting Operations and Lifting Equipment Regulations \(LOLER\)](#) and [Provision and Use of Work Equipment Regulations \(PUWER\)](#) **as amended**. See also [section 25.2](#).

24.2 Tenders

24.2.1 Type 1 Tenders

For the purpose of this **Code**, Type 1 Tenders are **vessels** which are towed or carried on board specifically for off-ship working on the business or support of the mother vessel.

24.2.1.1 For a **vessel** to operate as a Type 1 Tender it shall:

- .1 be issued with a **certificate** independently of the mother vessel with the endorsement "suitable for use as a Type 1 Tender" listed on the **Workboat Certificate**;
- .2 be separately named from the mother vessel;
- .3 be limited to operations no more than 10 **miles** from the mother vessel regardless of a tender's certified **area category of operation**;
- .4 be limited to **daylight** hours in **favourable weather** regardless of a tender's certified **area category of operation**;
- .5 have a risk assessment of the operation and equipment carried as per requirements of [section 3.14](#); and

- .6 follow [The Lifting Operations and Lifting Equipment Regulations \(LOLER\)](#)⁸² and [Provision and Use of Work Equipment Regulations \(PUWER\)](#)⁸³ as amended where applicable.

24.2.2 Type 2 Tenders

For the purpose of this **Code**, Type 2 Tenders are **vessels** towed or carried solely for tendering persons or stores directly to and from the mother vessel and not for **workboat** 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**.

24.2.2.1 A Type 2 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 Type 2 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; and
- .4 if the Type 2 Tender is an **open boat**, **boat with a buoyant collar**, an **inflatable boat** or **rigid inflatable boat**, shall meet the kill cord requirements as per [section 8.8](#).

24.2.3 Type 3 Tenders

For the purpose of this **Code**, Type 3 Tenders are independent **vessels** which support the main working business of the mother vessel and may be carried on board.

24.2.3.1 For a **vessel** to operate as a Type 3 Tender it shall:

- .1 be issued with a **certificate** independently of the mother vessel with the endorsement "suitable for use as a Type 3 Tender" listed on the **Workboat Certificate**;
- .2 not use the mother vessel as a **safe haven**;
- .3 be separately named from the mother vessel;
- .4 be limited to the certified **area category of operation**;
- .5 have risk assessments and documented procedures for all foreseeable operations;

⁸² [MGN 332 \(M+F\) Lifting operations and lifting equipment \(LOLER\) regulations 2006](#), as amended.

⁸³ [MGN 331 \(M+F\) Provision and use of work equipment \(PUWER\) regulations 2006](#), as amended.

25 Cargo Carrying, Lifting, High Speed and Bow Push Up 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:

- **Cargo** Carrying;
- Lifting (including diver lifts);
- **High Speed** or Planing Mode;
- Bow Push Up.

25.1 Cargo⁸⁶ Carrying Operations

25.1.1 All **cargo** shall be stowed and secured in a manner which will not adversely affect the safe operation of the **vessel**.

25.1.2 A **vessel** shall have adequate **cargo** support and securing arrangements appropriate for all intended modes of operation.

25.1.3 Stowed **cargo** shall not obstruct accessways or walkways, drainage of water from the deck or restrict visibility from the **wheelhouse**.

25.1.4 **Cargo** hatchways shall:

- .1 be of **weathertight** construction;
- .2 have a coaming with a minimum height of 760 mm;
- .3 be fitted with a means of closure which shall be secured to the coaming; and either
- .4 have a hatch cover and coaming designed to withstand (without permanent deformation) a hydrostatic load of not less than 1.5 tonnes/metre² overall and associated buckling stress; or
- .5 have a hatch cover and coaming of sufficient strength to withstand the additional weight of **cargo** stowed on the hatch cover. The hatch cover and coaming shall be able to withstand, at a minimum, the hydrostatic load as specified in [25.1.4.4](#).

25.2 Lifting Operations

25.2.1 Vessels Fitted with Lifting Devices

25.2.1.1 A **vessel** intending to operate lifting equipment shall comply with the following applicable safety requirements⁸⁷:

⁸⁶ For scope of operation please see also [1.5](#).

⁸⁷ Additional information on maintenance and lifting operations is available in [Code of safe working practices for merchant seafarers \(COSWP\) amendment 6 2021 Code of safe working practices for merchant seafarers \(COSWP\), as amended](#)

- .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**.

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.

25.2.1.2 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 operations⁸⁸ do not endanger the **vessel** or any persons on board.

25.2.1.3 Means shall be provided for the **efficient** securing of **cargo** and any loose equipment on board during lifting operations.

25.2.1.4 A **lifting device** which incorporates counterbalance weight(s) may be permitted upon application by the **Certifying Authority** to the **Administration**.

25.2.1.5 A non-**decked vessel** shall not be fitted with a crane or other **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 requirement of [paragraph 5.1.7](#).

25.2.2 Safety of Lifting Operations

25.2.2.1 The **vessel owner/operator** shall conduct a risk assessment before any lifting operation or examination or testing of lifting equipment is carried out.

25.2.2.2 An inclinometer or other on-board device to display heel angle to the crane or **lifting device** operator shall be used when controlling the lifting items of unknown weight. The heel angle shall not exceed the maximum permitted by the **vessel's** stability information booklet.

25.2.2.3 A prominent clear notice shall be displayed on or near the crane or **lifting device** and contain the following information and instructions⁸⁹:

- .1 the maximum permitted load and outreach which satisfy the requirements of section [12B.4.3](#) or the Safe Working Load (SWL), whichever is the lesser; and
- .2 details of all accessways leading below the **weather deck** which shall be securely closed prior to undertaking lifting operations.

⁸⁸ Special consideration shall be given to the risks associated with mobile cranes.

⁸⁹ A load radius performance chart for the crane or **lifting device** should be included as appropriate.

- 25.2.2.4 A crane or **lifting device** with a working load which varies with its operating radius shall have visible means provided to the operator at all times to determine the radius of load lifting attachments and safe working load.
- 25.2.2.5 A hydraulic loader crane may be fitted with a pressure gauge to monitor the pressure in the load bearing cylinder, with a relief valve to prevent overload.
- 25.2.2.6 Where a saturated load is required to be lifted, prior to the lifting operation taking place, the **Master** shall give due consideration to the additional weight due to the item being saturated. Where a load is being lifted from the seabed consideration shall be given to suction and snagging.
- 25.2.2.7 **Vessels** fitted with more than one crane and/or **lifting device(s)** shall:
- .1 have documented procedure(s) in place for safe operation where crane(s) and/or **lifting device(s)** are operated simultaneously;
 - .2 have stability calculations for safe operation of multiple cranes and/or **lifting device(s)** included in the stability information booklet (see also [section 12](#)).
- 25.2.2.8 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code shall either:
- .1 ensure that all personnel are located above deck prior to commencement of lifting operations; or
 - .2 have a risk assessment carried out by the **vessel owner/operator** to determine whether risks to persons located below deck during lifting operations have been acceptably reduced and mitigated. The risk assessment shall be to the satisfaction of the **Certifying Authority** and shall be available to the **Administration** upon request.
- 25.2.2.9 **Existing vessels** transitioning from Workboat Code Edition 2, **MGN 280** or the Brown Code shall meet the requirements of [25.2.2.7](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.
- 25.2.2.10 **Existing vessels** transitioning from **MGN 280** or the Brown Code shall meet the requirements of [25.2.2.1](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.
- 25.2.2.11 **Existing vessels** transitioning from the Brown Code shall meet the requirements of [25.2.2.4](#) by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.
- 25.2.3 Testing and Maintenance of Lifting Devices**
- 25.2.3.1 Load tests and inspections to verify the safe operation of the **lifting device**, its foundation and supporting structures shall be carried out 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**).

25.3.6 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 698**.

25.3.7 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 698**:

- .1 the strength of the **vessel's** construction;
- .2 the stability of the **vessel**;
- .3 the integrity of the bulwarks.

25.4 High Speed or Planing Mode Operations

25.4.1 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 [MGN 436 \(M+F\) as amended](#)⁹⁴.

25.4.2 A **vessel owner/operator** shall carry out a risk assessment for all **high speed** or planing mode operations.

25.4.3 The **vessel owner/operator** shall ensure that **vessels** have individual inboard 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.

25.4.4 All persons on board shall remain seated (or stood over jockey seats, as appropriate) during high speed or planing operations unless moving about the **vessel** for a specific purpose.⁹⁵

25.4.5 On a **rigid inflatable boat, boat with a buoyant collar, inflatable boat or open boat** persons shall only be seated in designated inboard seats (this excludes the gunwale or the tubes of a **boat fitted with a buoyant collar**).

25.4.6 **Existing vessels** transitioning from **MGN 280** or the Brown Code shall either:

- .1 meet the requirements of 25.4 by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later; or
- .2 provide a risk assessment to the satisfaction of the **Certifying Authority** which details the justification for not needing to meet the requirements of 25.4.

⁹⁴ The **Administration** has also 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](#).

⁹⁵ Further guidance can be found in the publication "**Passenger Safety on Small Commercial High Speed Craft & Experience Rides**, issue 3 – 2019."

25.5 Bow Push Up Operations

- 25.5.1 Where a **vessel** is intended for operations to transfer any persons or **cargo** over the bow, the bow structure shall be suitably arranged and strengthened for this purpose.
- 25.5.2 Where a **vessel** is intended for the transfer of persons over the bow, it shall be equipped with suitable foredeck and bow fendering arrangements, including but not limited to, handrails, 'step-across' arrangements and flush deck fittings positioned within walkways.
- 25.5.3 Bow structures supporting fenders for bow push up operations shall be of suitable strength. The **Certifying Authority** shall be satisfied by calculation that the proposed arrangement(s) will not yield or buckle under the design loads defined in [25.5.4](#).
- 25.5.4 The minimum quasi-static design loads on the bow structures shall be:
- .1 0.4 x displacement along the axis of the **vessel**;
 - .2 0.2 x displacement vertically;
 - .3 0.2 x displacement transversely.
- These loads are to be applied as independent loading conditions.
- 25.5.5 Bow structures shall be designed for contact with a single 350 mm diameter vertical bar.
- 25.5.6 Main propulsion machinery, shaft bearings, A and P brackets, propellers and rudders shall be suitably arranged and strengthened to take into account contact shock loading and to minimise vibrations.⁹⁶
- 25.5.7 **Existing vessels** transitioning from **MGN 280** or the Brown Code are not required to meet the requirements of [25.5.5](#).

⁹⁶ Vessels often operate at high engine power with no boat speed during push up operations. Operating this way can lead to high local vibrations from the propeller at zero speed, maximum thrust. This may affect propulsion performance, shorten component life and may expose **crew** to excess vibration.

26 Towing and Non-Self-Propelled Vessels

The purpose of this section is to set the minimum additional requirements for vessels engaged in **towing** or the requirements for non-self-propelled **vessels**, it is not intended to serve as comprehensive guide to towing for vessels primarily designed for towing operations (e.g. tugs). Tugs and other such vessels under this **Code** shall at all times operate in accordance with this **Code** in as far as the requirements permit and shall seek alternative guidance when performing operations over and above the intentions of the minimum requirements of this section.

26.1 General

26.1.1 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, particularly where 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.

26.1.2 Vessels with a Stability Information Booklet **towing** another vessel or floating object may use any of the **towing** methods outlined in [26.1.1](#).

26.1.3 Vessels without a Stability Information Booklet:

- .1 **towing** another vessel or floating object up to and including twice its displacement may use any of the specific **towing** methods outlined in [26.1.1](#).
- .2 **towing** another vessel or floating object more than twice its displacement may only use the specific **towing** methods outlined in [26.1.1.2](#) and [26.1.1.3](#).

26.1.4 A **vessel** engaged in **towing** shall be of a design to ensure safe and effective **towing** operation.

26.1.5 A **vessel** engaged in **towing** shall be issued with a **Workboat Certificate** with a **towing** endorsement.

26.1.6 The requirements of this section do not apply to **vessels towing** in an emergency situation (force majeure).

26.1.7 A **vessel's towing** equipment shall be serviced in accordance with the manufacturer's recommended service schedule but with no more than 12 months between services. Certification of servicing shall be made available for review by the **Certifying Authority** at each **annual examination**.

26.1.8 A **vessel owner/operator** shall carry out a regular detailed examination of the **towing** gear, including but not limited to the winch/posts structure welds and/or

retaining bolts. This shall form part of a documented procedure for the inspection, maintenance and routine testing of all **towing** equipment which shall also be made available for review by the **Certifying Authority**.

26.1.9 A **vessel owner/operator** shall have a documented procedure for the inspection, maintenance and routine testing of all **towing** equipment.

26.1.10 A Towing Survey shall be carried out by a **competent person** prior to the **vessel** undertaking **towing** operations. For the purposes of this section, a **competent person** may be a warranty surveyor, a **Certifying Authority** examiner or another person engaged or employed by the **owner/operator** having the necessary experience and training to carry out such a survey.

26.1.11 Where a **vessel** is intended to be engaged in **towing** the safety of the **towing** operation shall be assessed prior to departure.

26.2 Towing Arrangements

26.2.1 A vessel intending to engage in towing shall comply with the requirements of [table 26.2.1](#).

26.3 Risk Assessment of Towing Operations

26.3.1 The **owner/operator** of a **vessel** engaged in **towing** operations shall have a risk assessment and plan of **towing** operations for every voyage where **towing** is undertaken and shall include the following risk mitigating actions:

- .1 weather, sea state and environmental conditions likely to be encountered during the planned voyage;
- .2 any restrictions applicable to the towed object that may limit the safe speed;
- .3 limitations of **towing** equipment in use at the time of the planned voyage;
- .4 adequate towline length and control systems;
- .5 effectiveness of communications between vessel undertaking **towing** and a towed vessel or floating object;
- .6 Safety of personnel during **towing** operations (see **MIN 698**);
- .7 The means of safe access to a vessel undertaking **towing**, a towed vessel or floating object;
- .8 The availability of **safe havens** on the planned route; and
- .9 Adequate accommodation, emergency escape provisions and equipment including life-saving appliances and fire appliances where a towed vessel or floating object is intended to be manned at sea.

26.3.2 Where area(s) of risk not covered by paragraph [26.3.1](#) is identified, mitigating action(s) shall be included and implemented as part of the risk assessment.

Table 26.2.1 – Towing Arrangements Requirements

	Vessels towing up to and including twice its displacement	Vessels towing more than twice its displacement
Design of towing arrangements	The design of towing arrangements shall minimise the overturning moment due to the lead of the towline.	
Towing preparation	<p>Whilst undertaking towing a vessel engaged in towing and a towed vessel shall ensure that the following are secured in closed position, blanked or sealed:</p> <ul style="list-style-type: none"> .1 accessways (see section 6.2 of this Code); and .2 windows (see section 6.3 of this Code); and .3 external appliances (see section 6.4 of this Code). <p>All accessways shall be marked 'Not to be opened during towing operations' on both sides.</p>	
Towing equipment	A vessel shall be provided with a towline of minimum breaking strain of 2.5 x bollard pull, and of not less than the length and diameter of the spare anchor cable. Where practicable, the towline shall be buoyant. Towing at sea by towline shall only be done using a towing hook, towing winch or towline.	
Release mechanism	A vessel engaged in towing shall have a positive means of safe and rapid release in all anticipated operating conditions.	
Emergency release mechanism	A vessel shall have a documented and drilled procedure and means to release the tow which shall be demonstrated to the approval of the Certifying Authority . ⁹⁷	
		<p>The release mechanism shall be controlled and tested from all control positions including the winch and hook itself where practicable.</p> <p>Where the release mechanism is able to be operated at the tow hook or winch it shall be:</p> <ul style="list-style-type: none"> .1 of the direct mechanical type; and .2 capable of independent operation from the release mechanism system; and .3 independent of normal powered operation.
Towing arrangements load	The towing arrangements (including any item and equipment of the vessel used for the purpose of towing and any supporting structure) shall be strong enough to withstand the loads imposed during towing operations.	

⁹⁷ Additional guidance for tug owners/operators can be found in IACS Unified Requirement UR M79: <https://iacs.org.uk/resolutions/unified-requirements/ur-m/ur-m79-rev1-cln>

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 Qualifications Requirements

28.1.1 A **vessel** shall be safely manned, as a minimum, in accordance with the manning and qualifications requirements indicated in Tables [A5.1](#) and [A5.2](#) of [Appendix 5](#).

28.1.2 All licences, certificates of competence and **Certificates of Competency** (CoC) shall be appropriate to the **vessel's area category of operation** and type of operation. Qualifications differing from those listed in Tables [A5.1](#) and [A5.2](#) which are of equal standing or specialist application may be considered by the **Administration**.

28.1.3 Where a **vessel** is operating exclusively in an **area category of operation** lower than that for which it is certificated, the **vessel owner/operator** may meet the manning and seafarer certification requirements of the lower **area category of operation**.

28.1.4 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.

28.1.5 Anyone employed or engaged in any capacity onboard a **vessel** shall hold a valid medical fitness certificate. See **MIN 698**.

28.1.6 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. The **vessel owner/operator** shall ensure that there are sufficient trained personnel on board to work the **vessel** having due regard for the type of vessel, type of operation, and duration of the voyage.

28.1.7 All **Certificates of Competency** shall be revalidated every five years.

28.1.8 A **vessel** shall carry at least one person qualified for distress and safety radio communication. The qualified person shall hold a valid license or **Certificate of Competency** appropriate to the **area category of operation** and issued by the relevant authority¹⁰⁰.

28.2 Single Handed Operations

The **Administration** does not recommend **single handed operations**.

¹⁰⁰ The issue and enforcement of these certificates of competency is the responsibility of OFCOM for UK vessels.

28.2.1 **Single handed operations** are not permitted where:

- .1 a **vessel** is operating in **area category of operation** 0, 1 or 2;
- .2 the duration of the voyage exceeds 8 hours;
- .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 engaged in **towing**;
- .6 a **vessel** is a **Dedicated Pilot Boat** or holds a **Pilot Boat** Endorsement, and is undertaking **Pilot Boat** duties;
- .7 a **vessel** is involved in the transfer of personnel **at sea**;
- .8 a **vessel** is used as a diving platform; or
- .9 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 operations** where the following criteria 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 the **vessel** does not meet any of the following criteria:
 - .1 the **vessel** requires a watch system to maintain safe navigation;
 - .2 the **vessel** engages in **towing**;
 - .3 the **vessel** is a **Dedicated Pilot Boat** or holds a **Pilot Boat** Endorsement and undertakes **Pilot Boat** duties;
 - .4 the **vessel** is involved in the transfer of personnel at sea;
 - .5 the **vessel** is used as a diving platform

A **vessel** that has been permitted by a **Certifying Authority** to undertake **single handed operations** shall not undertake a **single handed operation** in conditions of restricted visibility and a **single handed operation** shall not exceed 8 hours in duration.

28.2.3 Where a **vessel** is permitted to undertake **single handed operations**, a **vessel's Workboat Certificate** shall be endorsed with the following: "Suitable

for **single handed operation**".

- 28.2.4 Where a **workboat** with a **Pilot Boat** Endorsement is permitted to undertake **single handed operations**, the conditions on the **Certificate** shall be endorsed so that it is clear that the **vessel** shall not be used for **single handed operations** when undertaking **pilot boat** duties.
- 28.2.5 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 [14.4](#) shall be worn at all times by the **Master**;
 - .2 a 406 MHz personal locator beacons (PLB)^{101,102} 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 who shall be notified of the safe arrival on 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 planing speed (including tenders) shall meet the requirements of [8.8](#).

28.3 Keeping a Safe Navigational Watch

- 28.3.1 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.
- 28.3.2 The **Master** and every person 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**.
- 28.3.3 Requirements for qualifications and experience of any person(s) assisting the **Master** in navigational watchkeeping are listed in [Table A5.1](#).

¹⁰¹ 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 100m.

¹⁰² Registration of Devices. 406MHz PLBs should be registered with the EPIRB Registry, details of which are given in [MGN 665 \(M+F\) Registration of EPIRBs and 406 MHz PLBs used in the maritime environment](#).

29 Carriage and Transfer of Dangerous Goods

The purpose of this section is to set out requirements for **vessels** which are engaged in the and transfer arrangements for Marine Gas Oil (MGO).

29.1 General

For the purposes of the [section 29](#) all goods carried on board which are not included as part of **ship's stores** are considered to be **cargo**.

29.1.1 A **vessel** which is engaged in the carriage of **dangerous goods** shall comply with the following:

- .1 [the Merchant Shipping \(Carriage of Dangerous Goods and Harmful Substances\) \(Amendment\) Regulations 2024 \(SI 2024 No. 636\)](#);
- .2 [the Merchant Shipping \(Carriage of Cargoes\) Regulations \(SI 2024 No 637\)](#); and
- .3 the International Maritime Dangerous Goods (IMDG) Code.

29.1.2 A **vessel** may carry the following United Nations (UN) Hazard Classes of **dangerous goods**¹⁰³ in gross total quantities not exceeding 30 kg or 30 litres, or less if stated by **IMDG Code**, without being issued with a Document of Compliance for the Carriage of **Dangerous Goods** (DoC DG) by the **Administration**:

- .1 Class 1.4 compatibility group S (explosives);
- .2 Classes 2.1 and 2.2;
- .3 Class 3;
- .4 Class 6.1 and 6.2;
- .5 Class 8;
- .6 Class 9.

29.1.3 The details of the DoC DG shall be recorded on the **Certificate**.

29.1.4 For the current list of **dangerous goods** see the latest version of **IMDG Code** and **MIN 698**.

29.1.5 A **vessel** where bulk **cargo** is loaded into and carried in the **vessel's** hold or tanks is considered to be a small tanker or a bulk carrier and shall not be certified under the provisions of this **Code**.

29.1.6 A **vessel** is only permitted by the **Administration** to carry Class 1 explosives as an exemption on a case-by-case basis where the following criteria are met:

- .1 no other **dangerous goods** are carried; and
- .2 a qualified military or explosive expert is present when explosives are being loaded, carried, unloaded or handled on board the **vessel**.

¹⁰³ Guidance including segregation requirements on the stowage and use of **dangerous goods** can be found in [MGN 497 Storage and use of dangerous goods onboard ship](#).

- 29.3.2 The designated person shall be employed by the **vessel owner/operator**.
- 29.3.3 Prior to accepting any **cargoes**, the designated person shall ensure that their carriage will be in compliance with this **Code**.
- 29.3.4 A **vessel** owner or designated person shall retain on shore a manifest of the **dangerous cargo** being carried, and shall at a minimum include:
- .1 the UN Number;
 - .2 the Proper Shipping Name;
 - .3 the Packing Group; and
 - .4 the quantity of each **dangerous good** being carried.

29.4 Stowage and Segregation Requirements

- 29.4.1 **Dangerous goods**, with the exception of fuel stored in **vessel's** tank(s) for the purpose of fuel transfer, shall be carried on the **weather deck** only. Stowage and segregation requirements are detailed in [Table 29.4](#) and shall be read in conjunction with the **IMDG Code**.
- 29.4.2 **Dangerous goods** shall be secured firmly to avoid movement either during normal conditions, or when the **vessel** is subjected to sudden acceleration, deceleration, or a large angles of heel or trim.
- 29.4.3 Where a **vessel** carrying **dangerous goods** is subject to additional stowage and segregation requirements set out in the **IMDG Code**, the **IMDG code** requirement shall overrule requirements of the table On Deck Space listed in Schedule 1 of DoC DG.
- 29.4.4 **Dangerous goods** shall be packed in accordance with the **IMDG Code**.
- 29.4.5 When an application is received by the **Administration** to renew the DoC DG for an **existing vessel** transitioning from **MGN 280** or the Brown Code the limitations on the type and amount of dangerous goods that the vessel may carry shall be as per **MGN 280**. If the vessel has previously been authorised and certificated to carry more than **MGN 280** requirements, this will be dropped down to the carriage requirements of **MGN 280** levels.
- 29.4.6 For an existing **MGN 280** vessel applying for a DoC DG for the first time, they will be permitted to carry dangerous goods in accordance with **MGN 280**.
- 29.4.7 For an existing Brown Code Vessel applying for a DoC DG for the first time, they will not be permitted to carry dangerous goods unless they choose to upgrade to the **Code** in full.
- 29.4.8 At any point, a vessel can voluntarily choose to comply with a different standard if they wish to carry dangerous goods or carry more dangerous goods in accordance with the **Code**. If they choose to do so they must comply in full with the standard.

Table 29.4 – Stowage Segregation Requirements

CLASS	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8	9
	1.5	1.6	1.6															
Explosives	1.1, 1.2, 1.5	*	*	*	4	2	2	4	4	4	4	4	4	2	4	2	4	X
Explosives	1.3, 1.6	*	*	*	4	2	2	4	3	3	4	4	4	2	4	2	2	X
Explosives	1.4	*	*	*	2	1	1	2	2	2	2	2	2	X	4	2	2	X
Flammable gases	2.1	4	4	2	X	X	X	2	1	2	2	2	2	X	4	2	1	X
Non-toxic, non-flammable gases	2.2	2	2	1	X	X	X	1	X	1	X	X	1	X	2	1	X	X
Toxic gases	2.3	2	2	1	X	X	X	2	X	2	X	X	2	X	2	1	X	X
Flammable liquids	3	4	4	2	2	1	2	X	X	2	2	2	2	X	3	2	X	X
Flammable solids (including self-reactive substances and solid desensitized explosives)	4.1	4	3	2	1	X	X	X	X	1	X	1	2	X	3	2	1	X
Substances liable to spontaneous combustion	4.2	4	3	2	2	1	2	2	1	X	1	2	2	1	3	2	1	X
Substances which, in contact with water, emit flammable gases	4.3	4	4	2	2	X	X	2	X	1	X	2	2	X	2	2	1	X
Oxidizing substances (agents)	5.1	4	4	2	2	X	X	2	1	2	2	X	2	1	3	1	2	X
Organic peroxides	5.2	4	4	2	2	1	2	2	2	2	2	2	X	1	3	2	2	X
Toxic substances	6.1	2	2	X	X	X	X	X	X	1	X	1	1	X	1	X	X	X
Infectious substances	6.2	4	4	4	4	2	2	3	3	3	2	3	3	1	X	3	3	X
Radioactive material	7	2	2	2	2	1	1	2	2	2	2	1	2	X	3	X	2	X
Corrosive substances	8	4	2	2	1	X	X	X	1	1	1	2	2	X	3	2	X	X
Miscellaneous dangerous substances and articles	9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

The numbers and symbols in the [Table 29.4](#) have the following meanings¹⁰⁶:

1	" away from " means "Effectively segregated so that the incompatible goods cannot interact dangerously in the event of an accident but may be transported in the same compartment or hold or on deck, provided a minimum horizontal separation of 3 m, projected vertically, is obtained."
2	" separated from " means "In different compartments or holds when stowed under deck. Provided the intervening deck is resistant to fire and liquid, a vertical separation, i.e. in different compartments , may be accepted as equivalent to this segregation. For on deck stowage, this segregation means a separation by a distance of at least 6 m horizontally."
3	" separated by a complete compartment or hold from " means "Either a vertical or a horizontal separation. If the intervening decks are not resistant to fire and liquid, then only a longitudinal separation, i.e. by an intervening complete compartment or hold, is acceptable. For on deck stowage, this segregation means a separation by a distance of at least 12 m horizontally. The same distance has to be applied if one package is stowed on deck, and the other one in an upper compartment ."
4	" separated longitudinally by an intervening complete compartment or hold from " means "Vertical separation alone does not meet this requirement. Between a package under deck and one on deck, a minimum distance of 24 m, including a complete compartment , must be maintained longitudinally. For on deck stowage, this segregation means a separation by a distance of at least 24 m longitudinally."
X	- the Dangerous Goods List has to be consulted to verify whether there are specific segregation provisions
*	- see 7.2.7.1 of IMDG Code for the segregation provisions between class 1 substances or articles

29.5 Scuppers and Drains

29.5.1 Scupper and drainage arrangements shall drain overboard and shall have no connections to internal spaces.

29.6 Electrical Equipment

29.6.1 Electrical equipment and the associated installation located in the area(s) of the **vessel** where **dangerous goods** are carried shall be either certified to an appropriate **standard** for the **dangerous goods** being carried, or shall be securely isolated during the carriage of **dangerous goods**.

29.7 Structural Fire Protection

29.7.1 Where **dangerous goods** are stowed within 3 metres of a bulkhead or a deck which forms a boundary to a space containing fuel tanks, **machinery** and **accommodation spaces**, the bulkhead or deck shall be insulated to A-60 standard.

29.7.2 Where a **vessel** constructed of aluminium is required to be fitted with A-60 insulation under [29.7.1](#), the insulation shall be of an approved '**A**' **Class** type tested under Part 3 of the **FTP Code** and be fitted in accordance with the conditions stated in the approval certificate.

¹⁰⁶ **IMDG Code** 7.6.3.2 Segregation of packages containing **dangerous goods** and stowed in the conventional way

29.7.3 Where a **vessel** constructed of fibre reinforced plastic (FRP) is required to be fitted with A-60 insulation under [29.7.1](#), the insulation shall meet the performance standard detailed in [MGN 407](#), **as amended**.

29.7.4 Alternatively to the insulation requirements of [29.7.2](#) and [29.7.3](#) the insulation and structure shall be type approved to Annex 1 Part 11 of the **FTP Code 2010** – Test for fire resisting divisions for HSC (see **MIN 698**). Acceptable insulations will 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.

29.8 Fire Fighting Equipment

29.8.1 A **vessel** shall be fitted with an engine driven fire pump or a power driven self-priming fire pump. A second powered fire pump shall be provided. **Existing vessels** transitioning from **MGN 280** or the Brown Code are only required to meet the requirements of [19.8.1](#) when carry Class 1 dangerous goods.

29.8.2 Each fire pump shall be capable of supplying two hoses and two nozzles. One of the nozzles shall be of a spray or jet type.

29.8.3 A minimum of two portable dry powder extinguishers with a minimum fire rating of 34B (in addition to the requirements of [section 16](#)) shall be provided and be readily accessible for the **dangerous cargo** area.

29.9 First Aid Kit Requirements

29.9.1 A **vessel** carrying **dangerous goods** or their residues shall comply with the **IMDG Code** and the guidance in the **IMO Medical First Aid Guide** for use in accidents involving **Dangerous Goods** (MFAG) (Current Edition) and the guidance in Annex 4 of [MSN 1905 \(M+F\) as amended](#).

29.9.2 On a **vessel** carrying **dangerous goods** or their residues in quantities exceeding those defined in column 7 of the **Dangerous Goods** list of the **IMDG Code**, as whole or part of the **cargo**, the **Master** shall ensure the correct antidote to the substance (plus the necessary ancillary equipment e.g. syringes) is carried. The correct antidote can be found in the **IMO Medical First Aid Guide** for use in accidents involving Dangerous Goods (MFAG), **as amended**.

29.10 Transfer Arrangements of Marine Gas Oil (MGO)

For the purpose of this section Marine Gas Oil is defined as:

- .1 UN1202 gas oil or **diesel** fuel or heating oil;
- .2 Light oil fuel as defined in Regulation 12A.3.1 of **MARPOL Annex I**. Where light oil fuel is being transferred it is considered to be **dangerous goods** under the **IMDG Code**.

29.10.1 Oil Spillage Prevention

29.10.1.1 A **vessel** shall carry on board an up to date plan of mechanisms to deal with oil spillage during the transfer of oil within the **vessel** and from the **vessel** to

the receiving facilities.¹⁰⁷ The plan shall be approved by the **Certifying Authority** where the **Certifying Authority** is satisfied the plan complies with MEPC 54(32).

- 29.10.1.2 A **vessel owner/operator** shall carry out a risk assessment for transfer of oil operations. The risk assessment shall include but not be limited to:
- .1 the hose not breaking free;
 - .2 pollution;
 - .3 fire safety; and
 - .4 training.
- 29.10.1.3 A **vessel owner/operator** shall have documented procedures which detail the loading, discharging, handling and transferring of fuel. The documented procedures shall be kept on board at all times.
- 29.10.1.4 All fuel, and products posing a risk to the environment shall be documented in a record book or log book.
- 29.10.1.5 A **vessel** shall carry suitable clean up equipment which shall be readily available when transferring fuel. Drains and scuppers shall be plugged during fuel transfer operation(s) to prevent oil entering the water.
- 29.10.1.6 Fuel pump(s) for the transfer of oil shall have an emergency shut-down button which is easily accessible from a permanently manned position during fuel transfer operation(s).
- 29.10.1.7 A **vessel** shall have suitable stowage provided for fuel transfer hoses.
- 29.10.1.8 Fuel transfer hose(s) shall meet the following requirements:
- .1 they shall have a dry break coupling fitted
 - .2 they shall comply with a suitable **standard** (see **MIN 698**);
 - .3 they shall be bonded; and
 - .4 they shall be of a suitable type for the product being transferred, system pressure and height of usage.
- 29.10.1.9 Fuel transfer hose(s) shall be maintained to a good condition and shall be inspected at minimum on an annual interval or as per the manufacturer's recommendations, whichever is more frequent. Worn or damaged hoses shall be replaced.

29.10.2 Vessels Engaged in MGO Transfer

¹⁰⁷ **IMO** Resolution MEPC.54(32) **as amended** by Resolution MEPC.86(44) and MEPC.85 (44) may be used in developing the plan.

This section applies to **vessels** engaged in the MGO transfer from the **vessel's** own fuel tank, or transfer of more than 1000 litres of MGO from portable tank(s) or Intermediate Bulk Containers.

29.10.2.1. A **vessel** may only be permitted to engage in MGO transfer operations where the following requirements are met:

- .1 the **vessel** meets the relevant requirements of this section and shall be subject to satisfactory examination by the **Certifying Authority**;
- .2 the **Certificate** shall be endorsed to permit this operation; and
- .3 the suitability of the **vessel** to be used for MGO transfer operations shall be reported by the **Certifying Authority** to the **Administration**.

29.10.2.2 A **vessel** which is engaged in MGO transfer from the vessel's own fuel tank(s) shall comply with **MARPOL** requirements. See [Appendix 7](#).

29.10.2.3 A **vessel's owner/operator** shall keep a record of MGO transfers including times, start and finish, quantities on board and quantities transferred.

29.10.2.4 A **vessel** which is engaged in MGO transfer from the **vessel's** own fuel tank(s) shall have metering or equivalent arrangements and documented procedure(s) in place to ensure that sufficient fuel remains on board for all normal and emergency operations.

29.10.2.5 All **crew** on vessels engaged in MGO transfer operation(s) shall be trained in bunkering and transferring operations. The training shall at the minimum include the following:

- .1 safe use of the equipment to minimise fire risks and pollution;
- .2 identifying the appropriate weather conditions in which to use the equipment required to undertake the operation; and
- .3 use of an up to date Material Safety Data Sheet (MSDS) provided by the fuel supplier, and which is specific to the fuel carried on board the **vessel**.

29.10.3 Vessels Engaged in Transfer of MGO and Other Products Posing a Risk to the Environment from a Portable Tank(s) or Portable and Fixed Intermediate Bulk Container(s) (IBC)

For the purpose of this **Code**, a **portable tank** is one that is not permanently attached to the vessel and which is not used as the vessel's own fuel tank(s). **Portable tanks** and IBCs shall be considered as **cargo** and meet the relevant requirements of section [25.1](#).

This section applies to **vessels** engaged in the transfer of MGO and other products posing a risk to the environment in a **portable tank(s)** or IBCs of less than 1000 litres.

Vessels engaged in transfer of more than 1000 litres shall meet the requirements of [29.10.2](#).

For the purpose of this section products other than MGO posing a risk to the environment are defined as:

- .1 other oils (UN 3038);

areas shall comply with [The Merchant Shipping \(Prevention of Air Pollution from Ships\) Regulations 2008 \(SI 2008/2924\), as amended](#).

30.5.3 All **vessels** with **diesel** and hybrid **propulsion systems** installed on or after 1st January 2021 which do not meet the requirements of [The Merchant Shipping \(Prevention of Air Pollution from Ships\) Regulations 2008 \(SI 2008/2924\), as amended](#), shall not operate in the Baltic and North Sea NOx emission control area¹⁰⁸. The inability to operate in the Baltic and North Sea NOx emission control area due to non-compliance with The Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 shall be noted on the vessel's **certificate**.

30.6 Oil Pollution Prevention

30.6.1 All **vessels** shall comply with [The Merchant Shipping \(Prevention of Oil Pollution\) Regulations 2019 \(SI 2019 No. 42\), as amended](#)¹⁰⁹.

30.6.2 All **vessels** shall meet the requirements for oil pollution prevention as set out in [Appendix 7](#) of this **Code**.

30.6.3 A Shipboard Oil Pollution Emergency Plan (SOPEP) shall be carried on board all **vessels** of 400 gross tonnage and above¹¹⁰. A SOPEP shall be developed and implemented by the **vessel owner/operator**.

30.7 Oil Filtering Equipment¹¹¹

30.7.1 Oil and all oily mixtures shall either be retained on board for subsequent discharge to reception facilities or discharged into the sea under the following conditions:

- .1 the **vessel** is proceeding en route; and
- .2 the **vessel** has in operation equipment approved by that **Administration** that ensures that the oil content of the oil or oily mixture without dilution does not exceed 15 parts per million (ppm)¹¹².

30.7.2 The **Administration** may consider accepting equipment approved in accordance with the IMO's relevant Resolutions for type approval of the filter, the 15-ppm alarm and the automatic stopping device in meeting the requirement of [30.8.2.2](#).

30.7.3 No discharge into the sea shall contain chemicals or other substances in quantities or concentrations which are hazardous to the marine environment

¹⁰⁸ MARPOL Annex VI, Regulation 13.6

¹⁰⁹ The Annex to the International Maritime Organisation (IMO) MEPC.1/Circ 642 provides "Revised Guidelines For Systems For Handling Oily Wastes In Machinery Spaces Of Ships Incorporating Guidance Notes For An Integrated Bilge Water Treatment System (IBTS)".

¹¹⁰ MARPOL Annex 1, Regulation 37.1

¹¹¹ MARPOL Annex I, Regulation 14.4.

¹¹² MARPOL Annex I, Regulation 15.6

(**harmful substances**) or chemicals or other substances introduced for the purpose of circumventing the conditions of the allowed discharge¹¹³.

30.7.4 The oil residues which cannot be discharged into the sea in compliance with Section [30.8](#) shall be retained on board for subsequent discharge to reception facilities¹¹⁴.

30.7.5 Compliance with [30.8.1](#), [30.8.2](#) and [30.8.4](#) shall be documented, kept on board and made available for inspection by the **Certifying Authority**. The **Certifying Authority** shall verify that the **vessel** complies with these requirements by, at a minimum, making a record of the following:

- .1 the size of the **vessel's** holding tank;
- .2 documentation attesting to the approval of equipment;
- .3 all related operations, maintenance and repair.

30.8 Control of Discharge of Oil¹¹⁵

30.8.1 A **vessel** is prohibited from discharging oil or oily mixtures in the **Antarctic area**.

30.8.2 In the case of a **vessel** of less than 400 gross tonnage, oil and all oily mixtures shall either be retained on board for subsequent discharge to reception facilities or discharged into the sea in accordance with the following provisions:

- .1 the **vessel** is proceeding en route; and
- .2 the **vessel** has in operation equipment approved by that **Administration** that ensures that the oil content of the oil or oily mixture without dilution does not exceed 15 parts per million (ppm)¹¹⁶.

30.8.3 The **Administration** may consider accepting equipment approved in accordance with the IMO's relevant Resolutions for type approval of the filter, the 15-ppm alarm and the automatic stopping device in meeting the requirement of [30.8.2.2](#).

30.8.4 No discharge into the sea shall contain chemicals or other substances in quantities or concentrations which are hazardous to the marine environment or chemicals or other substances introduced for the purpose of circumventing the conditions of the allowed discharge¹¹⁷.

¹¹³ **MARPOL Annex I, Regulation 15.8**

¹¹⁴ **MARPOL Annex I, Regulation 15.9**

¹¹⁵ **MARPOL Annex I, Regulation 15.3**

¹¹⁶ **MARPOL Annex I, Regulation 15.6**

¹¹⁷ **MARPOL Annex I, Regulation 15.8**

31 Safety Management

The purpose of this section is to outline the Safety Management System requirements which are appropriate and applicable for **workboats**.

31.1 General

31.1.1 All **vessels**, excluding **Remotely Operated Unmanned Vessels**, certificated under this **Code** shall, 3 years after the **Code** comes into force, comply with the requirements of sections [31.2](#) and [31.3](#).

31.1.2 All **Remotely Operated Unmanned Vessels** certificated under this **Code** shall, from the date this **Code** enters into force, meet the requirements of sections [31.2](#) and [31.3](#) of the **Code**.

31.2 Safety Management System

31.2.1 All **vessel owner(s)/operator(s)** operating under this **Code** shall implement a Safety Management System (SMS) which is proportionate with the size and complexity of the **vessels** and the company or owner/operator's operations. The SMS shall consider both terrestrial and marine aspects as appropriate to the **vessels** and company's operations. See [Appendix 8](#) for details of the areas which must be addressed by a SMS.

31.3 Cyber Security

31.3.1 A **vessel's owner/operator** shall implement cyber security measures to protect the **vessel** and **crew** from risks associated with cyber-attacks.

31.3.2 The required extent of cyber security measures shall be commensurate with the size, complexity and type of operation of the **vessel**, and shall be determined by the **vessel owner/operator** and shall be made available for review by the **Certifying Authority**.

Cyber security measures shall include at a minimum the following^{119, 120}:

- .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;

¹¹⁹ [MSC.428\(98\) Maritime Cyber Risk Management in Safety Management Systems](#).

¹²⁰ 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.

- .5 resilient means to restore key systems;
- .6 means to ensure that critical back-up systems maintain functionality during a cyber-attack;
- .7 measures to successfully back-up and restore critical systems following a cyber-attack.

31.3.3 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;
- .2 OT (operation and control technology) systems;
- .3 remotely operable equipment;
- .4 communication systems; and
- .5 **crew** responsibilities in the 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.

31.3.4 Where a cyber security system identifies an attack or potential risk(s) it shall be alerted at the **control position(s)**.

31.3.5 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.

31.3.6 A **vessel owner/operator** shall have a 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. Back-up files required to resume safe operations following a cyber-attack shall be located on board the **vessel**.

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:

'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 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.

'wearing of a lifejacket' means that all persons on board 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 each person on board has 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, floatation suit meeting EN ISO 15027-1, or other foul weather clothing is not insulated, warm clothing worn beneath the dry suit, floatation suit meeting EN ISO 15027-1, or other suitable foul weather. 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 ¹²¹	Favourable Weather & NO Seasonal Restrictions	NO Weather Restriction & NO Seasonal Restrictions
From a Safe Haven CATEGORY 4		Up to 20nm	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED
		Up to 10nm	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	From a Point of Departure CATEGORY 5	Up to 3nm	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.

¹²¹ Seasonal Restrictions – Restricted to operation between 1st April and 31st October.

- 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 of 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.
- 4.2 Connections between rigid pipe sections shall be made with hard solder (minimum melting point 450 degrees centigrade).
- 4.3 Compression or screwed fittings of an appropriate **standard** shall be used in LPG pipework installations.
- 4.4 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.
- 4.5 Pipework which passes through the following areas shall be solid and shall not have 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.

- 4.6 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.
- 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** and hobs are not classed to be 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 **heaters** 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 Means for detecting an accumulation of gas shall be fitted 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 which the gas-consuming appliance is located, 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 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 the 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 compartment concerned and at the **control position(s)**.

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 Brown Code shall meet the requirements of this section by the **vessel's** next **renewal examination** or three years after the date of entry into force of the **Code**, whichever is later.

APPENDIX 2B

ON BOARD INSTRUCTIONS AND INFORMATION FOR HEATING APPLIANCES WHICH ARE FIRED

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 refueling and type of fuel used;
 - .5 specify required service intervals; and
 - .6 instructions on action to be taken in the event of a 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;
 - .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 698**.

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	
	Official number		
	Port of registry		
	Certifying Authority		
	Number of persons carried		
	Maximum weight of cargo		

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 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 [28.1](#) of this **Code**.

2. Minimum Manning and Qualification Requirements

- 2.1 The minimum manning and qualifications requirements are indicated in Tables [A5.1 Minimum Deck Manning Requirements](#) and [A5.2 Minimum Engineering Manning Requirements](#).

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	STCW Master (Workboat less than 500GT unlimited area)	Note G	√	√	√	√	√	√	√
	STCW Master (Code Vessels less than 200GT unlimited area)	Note E	√	√	√	√	√	√	√
	RYA/ MCA Yachtmaster Ocean Certificate of Competence	Note A	√	√	√	√	√	√	√
	STCW Master (Code Vessels less than 200GT limited to 150 miles from a safe haven)	Note E	√	√	√	√	√	√	
	RYA/ MCA Yachtmaster Offshore Certificate of Competence or Service	Note A	√	√	√	√	√	√	
	MCA Boatmasters' Licence	Note B	√	√	√	√			
	RYA/ MCA Yachtmaster Coastal Certificate of Competence or Service	Note A	√	√	√	√			
	RYA/ MCA Powerboat Advanced Certificate of Competence	Note F Note A	√	√	√	√			
	RYA/ MCA Powerboat Advanced Practical Certificate (only if issued before 1 st 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 Certificate	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	There shall also be on board a second person that the vessel owner/operator considers to be experienced and competent.		√	√	√	√			
	There shall also be on board a second person deemed competent by the master to be suitably experienced with the type of vessel, range of operations undertaken on the voyage, and who is familiar and experienced in all likely sea-state, weather, and light conditions likely to be encountered for duration of the voyage						√		
	There shall also be on board a second person holding at least an RYA/ MCA Certificate of Competence or Service 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 200GT limited to 150 miles from a safe haven), Yachtmaster Ocean or STCW Master (Code Vessels less than 200GT unlimited)								√

Table A5.2 – Minimum Engineering Manning Requirements

Area Category of Operation ^{Note 1, 5, 10}	6-3	2	1	0
Approved Engine Course (Part 1) or satisfied the Maritime and Coastguard Agency as to their appropriate engineering experience and competency ^{Note 2, 3, 4}		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 111/4 Engine Ratings or AEC (Part 1 and 2) ^{Note 7}			Power Vessel W	Power Vessel W <1500 kW
Senior Marine Engine Operators Licence (SMEOL), STCW C/Eng (Y4) / ^{Note 9, 7}				Power Vessel W >=1500 kW < 3000 kW
Small Vessel Second Engineer Certificate of Competency ^{Note 9,7}				Power Vessel W >=1500 kW < 3000 kW
STCW III/2 Small Vessel Chief Engineer				<9000KW <3000GT

- 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 A7.1](#).
- 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 ensure that the **crew** are appropriately trained.

3. Mandatory Training Courses

Table A5.3 – Mandatory training courses requirements

Mandatory Training Course	Application	Requirements
RYA Basic Sea Survival or MCA approved Personal Survival Techniques	All vessels	All operators following the STCW Certificate of Competency route shall complete an MCA approved Personal Survival Techniques course. All operators not following this route shall complete a RYA Basic Sea Survival or may complete an MCA approved Personal Survival Techniques course as an alternative.
First Aid Training	MLC compliant vessels	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
	Non- MLC vessels operating in area category of operation 0 or 1	Master shall hold Proficiency in Medical Care Certificate (or the Ship Captain's Medical Certificate) unless another member of the crew holds a medical or nursing qualification of an equivalent or 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	Minimum one crew member shall complete an MCA approved one day fire fighting course, or STCW Fire Fighting and Fire Prevention course, or the equivalent Royal Navy course.
	Vessels 15m and over	All crew members shall complete an MCA approved one day fire fighting course, or STCW Fire Fighting and Prevention, or the equivalent Royal Navy course.
Radar Training	Vessels carrying radar	All Masters , and crew likely to use radar shall complete an MCA approved Small Ships Navigation and Radar: Radar and Meteorology course, or alternatively, any course that may be specified as MCA approved or recognised as fulfilling these requirements in MIN 698 .
Stability Training	Vessels required to be provided with a Stability Information Booklet	As a minimum, the Master shall complete an MCA approved 1 day stability course.
Electronic Chart Systems Training	Vessels carrying Electronic Chart Plotters	All Masters , and crew responsible for a navigational watch shall complete an MCA approved Small Ships Navigation and Radar: Electronic Chart Systems and Bridge Watchkeeping course, or alternatively any course that may be specified as MCA approved or recognised as fulfilling these requirements in MIN 698 . In addition, all vessel owner/operators and Masters shall ensure that all crew including the Master required to train under these requirements are appropriately familiar and trained to use the specific equipment on board the vessel.
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 equipment in excess of Code requirements shall undertake appropriate training in the use of that equipment e.g. ECDIS ^{Note B}
Catering Training	Where appropriate	All crew engaged in the preparation of food shall undertake a 'Basic Food Hygiene' or 'Food Safety' course, level 2.

Note B

See **MIN 698**

Class 5 – Oxidising substances and organic peroxides



(No. 5.1)
Class 5.1
Oxidizing substances
Symbol (flame over circle): black; Background: yellow.
Figure '5.1' in bottom corner.



(No. 5.2)
Class 5.2
Organic peroxides
Symbol (flame): black or white;
Background: upper half red; lower half yellow;
Figure '5.2' in bottom corner.



Class 6 – Toxic and infectious substances



(No. 6.1)
Class 6.1
Toxic substances
Symbol (skull and crossbones): black.
Background: white. Figure '6' in bottom corner.



(No. 6.2)
Class 6.2
Infectious substances

The lower half of the label may bear the inscriptions **INFECTIOUS SUBSTANCE** and **In case of damage or leakage immediately notify Public Health Authority.**
Symbol (three crescents superimposed on a circle) and inscriptions: black.
Background: white. Figure '6' in bottom corner.

APPENDIX 7

OIL POLLUTION PREVENTION

1. Special Areas (Annex I of MARPOL, Regulation 1)

1.1 For the purposes of this Annex, 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

APPENDIX 8

SAFETY MANAGEMENT SYSTEM

The purpose of this Appendix is to set out how to develop and implement an appropriate and proportionate Safety Management System based on the requirements that can be found within the International Safety Management Code.

1. General

1.1 A Safety Management System shall include the following:

- .1 Safety and Environmental Protection Policy;
- .2 Risk Assessment for Safe Working;
- .3 Health and Safety Protection Policy;
- .4 responsibilities of the **Master** and Personnel;
- .5 training of Personnel;
- .6 procedures to ensure safe operation of a **vessel**;
- .7 emergencies;
- .8 reporting of accidents;
- .9 maintenance of the **vessel** and equipment; and
- .10 review.

2. A Safety and Environmental Protection Policy

2.1 A Safety and Environmental Protection Policy must address:

- .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.

3. Risk Assessment(s) for Safe Working

3.1 The **vessel owner/operator** shall produce an effective Risk Assessment(s) which shall identify risks to personnel, **vessels** and the environment.¹²² The outcomes from the risk assessment(s) shall inform the development of safe

¹²² Further guidance can be found in Chapter 1, [Code of safe working practices for merchant seafarers \(COSWP\) amendment 7 2022](#)

relevant regulations and rules.

7.2 Prior to the first occasion of working on the **vessel**, each worker 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 [10.5 Emergencies](#));
- .4 donning of lifejackets (see also [section 14.4](#)); and
- .5 use and handling of fire-fighting equipment (see also [section 16](#)).

8. **Procedures to ensure safe operation of a vessel**

8.1 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 bunkering operations;
- .5 **watertight/weathertight** integrity;
- .6 stability of the **vessel**;
- .7 conduct of **passengers** and **crew** while on board; and
- .8 emergency **towing**.

9. **Safety Briefing**

9.1 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.

9.2 In addition to the requirements of [9.1](#) the **Master** shall brief at least one other person on board on the following:

- .1 the location of liferafts and the method of launching;

- .2 the procedures for the recovery of a person from the sea;
- .3 the location and use of pyrotechnics;
- .4 the procedures and operation of radios carried on board;
- .5 the location of navigation and other light switches;
- .6 the location and use of firefighting equipment;
- .7 the method of starting, stopping and controlling the main engine;
- .8 the method of navigating to a suitable port of refuge; and
- .9 the 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.

10. Emergencies

10.1 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.

10.2 The roles and responsibilities of all personnel in an emergency situation shall be clearly defined.

10.3 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.

- 10.4 Emergency situations likely to be encountered by the **vessel** shall be considered by the **vessel owner/operator**.
- 10.5 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.
- 10.6 Where possible, all personnel shall be involved in these exercises, both on shore and on board.
- 11. Reporting of Accidents**
- 11.1 A clear procedure for reporting of accidents shall be understood by all personnel.
- 11.2 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 698**.
- 11.3 All accidents and near-misses shall be recorded and reported to the **vessel owner/operator** who shall implement corrective action.
- 12. Maintenance of the Vessel and Equipment**
- 12.1 A **vessel** and its equipment shall be maintained in accordance with the requirements of [Section 3.5](#).
- 12.2 The **vessel owner/operator** shall develop documented procedures for a more detailed inspection and maintenance program 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.
- 13. Review**
- 13.1 The **vessel owner/operator** shall undertake a review of the safety management system at least once every three years.

APPENDIX 9

TRANSITIONAL ARRANGEMENTS

- 1 This Appendix outlines the transitional arrangements required for **vessels** to comply with the **Code**.
- 2 To the extent necessary, the requirements set out in Workboat Code Edition 1 (the “Brown Code”), its equivalent standard published in the technical Annex to **MGN 280(M)**, and the Workboat Code Edition 2, Amendment 1 are incorporated into the **Code**.
- 3 **Existing vessels** that are certificated under the Brown Code, its equivalent standard published in the technical Annex to **MGN 280(M)**, or Workboat Code Edition 2, Amendment 1 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 Workboat Code Edition 2 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 Workboat Code Edition 2; or
 - .2 meet the requirements of the **Code** in full.
- 5 The Brown Code, its equivalent standard published in the technical Annex to **MGN 280(M)**, and the Workboat Code Edition 2, Amendment 1 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.

Conditions and limitations: -

- To comply with the Documentation of Compliance SWB2.
- When the vessel is sold this statement of compliance is automatically cancelled and must be returned to the (CA) Office.
- 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 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 relating to **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 a ventilation system shall activate an auditory and visual alarm at the **control 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.

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 698**).

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 shall be submitted to the **Certifying Authority** for consideration, and shall be submitted by the **Certifying Authority** to the **Administration** for 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 alarms and shutdowns;
- .9 required 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);

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 Rooms

3.1.1 Batteries shall, in accordance with the battery manufacturer's recommendations, be located within either a:

- .1 **battery box**; or
- .2 dedicated **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 and visual alarms in the affected space and at the **control 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 **LEL** the battery shall be

Annex 2

Remotely Operated Unmanned Vessels

This Annex provides additional requirements to be complied with for a **Remotely Operated Unmanned Vessel** of <24m **Load Line Length** operating as a **workboat**. **Vessels** intending to operate as a **Remotely Operated Unmanned Vessel** must comply with both this Annex and the main body of the **Code**.

1 Foreword

1.1 General Requirements

1.1.1 This Annex applies to **Remotely Operated Unmanned Vessels** (ROUVs) operating as **workboats** that operate **to sea**. It applies to such **vessels** that are **United Kingdom (UK) vessels** wherever they may be, and to non-United Kingdom vessels operating from UK ports whilst in UK waters.

1.1.2 **Vessel owners/operators** wishing to operate a **vessel** with a mode of operation different to that of **Remotely Operated Unmanned Vessels** may be considered on a case-by-case basis by the **Administration**.

1.1.3 **Vessel owners/operators** wishing to operate a **Remotely Operated Unmanned Vessel** which is not able to meet the requirements of this Annex and **Code** may be considered on a case-by-case basis by the **Administration** where the **Administration** is satisfied that compliance with the **Code** is either impracticable or unreasonable in the case of that **Remotely Operated Unmanned Vessel**. (See **MIN 698**).

1.1.4 This Annex does not apply to autonomous underwater vessels.

1.2 Sections of the Workboat Code disapplied for Remotely Operated Unmanned Vessels

1.2.1 The following provisions of the **Code** do not apply to **Remotely Operated Unmanned Vessels**:

- .1 Section 12A.3.5 – Person Recovery Stability Test
- .2 Section 14 – Life Saving Appliances (except for a specific exemption detailed in Section 6.3.2 of this Annex)
- .3 Section 16.1.2 – Fire Ports in Engine Boxes
- .4 Section 16.2 – Protection of Accommodation Spaces
- .5 Section 16.4.2 – Fire Pumps
- .6 Section 16.5 – Fire Blanket

.24 commands sent to a **Remotely Operated Unmanned Vessel**.

All data shall be retained for a minimum of 30 days.

2.2.4 The **owner/operator** of a **Remotely Operated Unmanned Vessel** shall have defined procedures for securing of onboard and onshore data following an accident or incident.

2.2.5 Where the data format used on board a **Remotely Operated Unmanned Vessel** or at a **Remote Operation Centre** is individual to the manufacturer of the **vessel** or equipment used a conversion tool to convert data to Commercial Off The Shelf (COTS) formats shall be made available to the relevant investigating authority. Replay software shall be supplied license free to the relevant investigating authority.

2.3 Safety of Operations

2.3.1 The **vessel owner/operator** shall produce and maintain a list of **critical equipment**.

2.3.2 A **Remotely Operated Unmanned Vessel** shall have redundancies installed for **critical equipment**.

2.3.3 The **vessel owner/operator's** contact details shall be clearly displayed on the exterior of a **Remotely Operated Unmanned Vessel**.

5 Navigational and Anchoring Equipment

The purpose of this section is to provide means of safe navigation and anchoring of **Remotely Operated Unmanned Vessels**.

5.1 Vessel Headings and Bearings

5.1.1 A **Remotely Operated Unmanned Vessel** shall be fitted with means of determining the **vessel's** heading and correcting headings and bearings to true; and this shall be displayed at the **control position(s)** at all times.

5.1.2 A back-up power supply to the equipment in [Section 5.1.1](#) of this Annex shall be available in the event of failure of the main electrical power supply.

5.2 Sensors and Cameras

5.2.1 Sensors (e.g. radar, AIS, microphone, vibration) and cameras (e.g. normal, low-light, infrared) shall be installed to provide horizontal and vertical arcs of visibility to meet requirements for watchkeeping and all operational activities to the satisfaction of the **Certifying Authority** (see [Section 7.4.1](#) of this Annex, **MIN 698** and see [Section 10.1.2](#) of the **Code**) and watchkeeping requirements shall be to the satisfaction of the **Administration**.

5.2.2 The provision of a proper lookout is required by the International Regulations for the Prevention of Collisions at Sea.

5.2.3 All **Remotely Operated Unmanned Vessels** shall have an AIS transceiver installed. The AIS transceiver shall be operable from the **Remote Operation Centre**.

5.2.4 It shall be demonstrated to the satisfaction of the **Certifying Authority** that sensors and cameras installed on a **Remotely Operated Unmanned Vessel** are able to work effectively either separately, or in conjunction with each other, without causing interference. All systems and equipment installed on board a **Remotely Operated Unmanned Vessel** shall be designed to not affect the functioning of sensors and cameras.

5.2.5 Sensors and cameras shall be located in a position not likely to be damaged, obstructed, or have their situational awareness compromised by flooding or other environmental conditions (e.g. weather or bird fouling) during normal operations.

5.2.6 Sensors and cameras shall be suitable for marine use, be designed to operate in all anticipated conditions and situations, and shall be demonstrated to the satisfaction of the **Certifying Authority**.

5.3 Watchkeeping Visibility

5.3.1 Camera and sensor visibility shall not be restricted by any **cargo** or payload when in the secured stowed position.

5.3.2 A **Remote Operator** shall carry out duties at the **control position(s)** as both look-out and helmsperson and shall have:

- .1 unobstructed all-round vision;

- .3 enable identification and recognition of different vessel types including lights, shapes, sound and light signals (as detailed in parts C and D of **COLREGS**, 1972);
- .4 enable identification of, at an appropriate range, the speed, course and distance of an oncoming vessel;
- .5 provide situational awareness for **Remote Operators** to effectively control, and plan actions for, a **Remotely Operated Unmanned Vessel**;
- .6 provide situational awareness to be able to detect person(s) in or on the water;
- .7 monitor the health and operation of **critical equipment**;
- .8 monitor **vessel** motion;
- .9 have sufficient noise cancelling properties to aid accurate sound perception by **Remote Operators** (e.g. minimise the impact of the background noise from the **Remotely Operated Unmanned Vessel**);
- .10 provide critical and non-critical alarms in clearly accessible audible and visual formats;
- .11 have visual alarms visible under all lighting conditions; and
- .12 auditory alarms shall be audible in all **Remote Operation Centre** conditions (including, but not limited to, the use of headsets and loudspeakers).

7.3.2 A **Remote Operation Centre** shall have an emergency source of power which, at a minimum, is able to power all **critical equipment** or put the vessel into a safe state (see [Section 2.3.1](#) of this Annex).

7.3.3 A **Remote Operation Centre** shall have a suitable emergency plan.

7.3.4 A **Remote Operation Centre** must comply with the cyber security requirements set out in Section 31.3 of the **Code**.

7.3.5 No single failure of systems at the **Remote Operation Centre** shall result in a **Remotely Operated Unmanned Vessel** entering an unsafe state.

7.3.6 A **Remote Operation Centre** shall have means to display the status of each **Remotely Operated Unmanned Vessel**. The status of a **vessel** shall include all the information required to safely and successfully operate a **Remotely Operated Unmanned Vessel**.

7.4 Remote Operation Centre Workstations

7.4.1 **Remote Operator Centre** workstations shall be set-up so that the **remote operator** at all times:

- .1 has a sufficient size of screens to display critical information at all times (e.g. alarm, camera and sensor outputs);

8 Safety Management System and Contingency Measures

The purpose of this section is to outline the Safety Management System and contingency measure requirements to ensure the safety of other water users, the safety and integrity of the **Remotely Operated Unmanned Vessel** and the safety of the marine environment. A number of requirements are given to protect **Remotely Operated Unmanned Vessels** and **Remote Operation Centres** from risks associated with cyber-attacks.

8.1 Safety Management System and Cyber Security

8.1.1 All documents relating to the Safety Management System shall be available at the **control position(s)**.

8.1.2 Cyber security measures for **Remotely Operated Unmanned Vessels** shall:

.1 provide secure connections between a **Remotely Operated Unmanned Vessel** and the **Remote Operation Centre**; and

.2 where possible protect against successful cyber-attacks and cyber-incidents on **Remotely Operated Unmanned Vessels** or **Remote Operation Centres**.

8.1.3 The **owner/operator** of a **Remotely Operated Unmanned Vessel** shall develop procedures for the following:

.1 authorisation for connections between a **Remotely Operated Unmanned Vessel** and **Remote Operation Centre**;

.2 authorisation for direct connections to a **Remotely Operated Unmanned Vessel**;

.3 recovery plan(s) for the successful recovery of systems following a cyber-attack;

.4 measures to initiate a **safe state** for a **Remotely Operated Unmanned Vessel** in an emergency; and

.5 contingency plans to respond to the loss of critical systems.

8.1.4 Following disruption to, or re-establishment of, connection between a **Remotely Operated Unmanned Vessel** and **Remote Operation Centre** the health and security of the connection shall be tested.

8.1.5 Internal audits of the **Remote Operation Centre**, its functions, internal operating standards and record-keeping shall be carried out on an annual basis and shall be made available for review by an **authorised person** during survey and inspection of the **Remotely Operated Unmanned Vessel**.

8.1.6 The **owner/operator** of a **Remotely Operated Unmanned Vessel** shall comply with applicable legislation within all states that the **Remotely Operated Unmanned Vessel** and **Remote Operation Centre** intend to operate in¹²⁷.

¹²⁷ The European Union General Data Protection Regulation (GDPR) or other specific regulations in other coastal states.

Annex 3

The Safety of Police Boats

This Annex provides requirements to be complied with for the safe operation of **Police Boats Vessels** intending to operate as a **Police Boat** must comply with both this Annex and the applicable requirements of the main body of the **Code**.

1 Foreword

- 1.1 This Annex is an amendment by addendum to the Safety of Small Workboats and Pilot Boats - A Code of Practice (Workboat Code Edition 3), enabled and underpinned through statutory instrument by [The Merchant Shipping \(Small Workboat and Pilot Boats\) Regulations 2023 \(SI 2023/1216\)](#).
- 1.2 This Annex, in conjunction with Workboat Code Edition 3, provides all information needed for vessels intending to operate as a **Police Boat**.
- 1.3 This Annex must, from the date of publication (1st June 2024), apply to all **United Kingdom vessels** that are new **Police Boats** owned or operated by a **Police Service**, which carry not more than 12 **passengers** and operate either **at sea** or in **categorised** (i.e. inland) **waters**.
- 1.4 A **new vessel** shall be surveyed and certificated under this Annex.
- 1.5 An **existing vessel** shall either:
 - .1 use this Annex as an updated standard to the requirements of The Safety of Police Boats, Amendment 3; or
 - .2 continue to operate and be issued with Certification under The Safety of Police Boats, Amendment 3.
- 1.6 Where an existing **Police Boat** phases-in to this Annex it must fully comply with the requirements of this Annex. A **Police Boat** cannot meet a combination of the requirements of this Annex and those of earlier codes or standards.
- 1.7 This Annex was drafted in association with the **National Police Chiefs Council (NPCC)** Maritime Policing Portfolio.
- 1.8 This Annex forms part of the **Code** which is given legal effect by the [Merchant Shipping \(Small Workboats and Pilot Boats\) Regulations 2023](#) ("the 2023 Regulations"). **Police Boats** issued with a **certificate** in accordance with this Annex provides a legal alternative to an **MCA** issued Load Line Certificate for seagoing **Police Boats**. It is applied as an equivalent standard to full compliance with **Merchant Shipping Regulations**. **Police Boat** operators have the right to fully comply with those other standards instead of this Annex (see [Section 1.10](#) of the **Code**). Vessels that comply with this Annex may additionally be issued with a UK Load Line Certificate.

- .4 have a water intake grill properly installed and blended with the inlet flow restrictions;
 - .5 have a flame arrestor fitted to extinguish fire or flames if the engine backfires.
- 22.3.2 A fuel tank(s) shall be constructed as per the requirements of [Section 8.12](#) of the **Code**.
- 22.3.3 Petrol shall be stored in a permanent inboard fuel tank.
- 22.3.4 All exposed surfaces within an **engine space** shall be constructed of, or treated with, a suitable flame-retardant material.
- 22.3.5 Means shall be provided to isolate a source of fuel in a **machinery space** or outboard motor. The means of closure shall be positioned 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.
- 22.3.6 All switches, accessories and harnesses must be sealed and fused.
- 22.3.7 A Police Personal Watercraft shall have a battery charging system.
- 22.3.8 The ignition system shall be a Capacitor Discharge Ignition (CDI) unit with the resistor caps and to resist radio frequency interference (RFI).
- 22.4 Steering, Rudder and Propulsion Systems**
- 22.4.1 A Police Personal Watercraft shall be fitted with an **efficient** means of steering which shall be of the handlebar type with either thumb or finger throttle controls.
- 22.5 Bilge Pumping**
- 22.5.1 Spaces below the **weatherdeck** where water may collect, and which are not served by drainage arrangements, shall be provided with a vacuum or electric type bilge system which shall discharge overboard above the waterline.
- 22.6 Life Saving Appliances**
- 22.6.1 All **crew** on board shall wear a Personal Locator Beacon (PLB) equipped with GPS and a light, a lifejacket meeting the requirements of ISO 12402-5 and clothing meeting the requirements of Section 20.3;
- 22.6.2 Eye protection, such as goggles or equivalent, shall be worn by the **crew** at all times.
- 22.6.3 Police Personal Watercraft proceeding **to sea**, or where otherwise deemed necessary, shall carry on board the following rescue equipment:
- .1 a minimum of one buoyant lifeline not less than 18 meters in **length** attached to a rescue quoit or similar device;
 - .2 a first aid kit equipped to an agreed standard for the intended area of operation (see [Section 23](#) of the **Code**).
- 22.6.4 All Police Personal Watercraft must be capable of being righted by the **crew**.

Appendix Ap3.1 Application for a Police Boat Certificate

Name of Vessel_____

Official No._____

Vessel type_____

Gross Tonnage/Weight_____

Overall length_____

Port of Registry_____

Date of Build_____

Name and address of Owner

Base Port_____

**TO BE CERTIFICATED IN ACCORDANCE WITH THE SAFETY OF POLICE BOATS –
WORKBOAT CODE EDITION 3 ANNEX 3**

Intended Area of Operation (including distance offshore if proceeding to sea)

EXISTING BOATS

Year of build _____

Does the vessel hold a valid Police Boat Certificate? Yes / No

If yes, what is the date of expiry or next inspection?

Does the vessel hold a current Small Commercial Vessel or Workboat Certificate? Yes /
No

If yes, what is the date of expiry or next inspection?

Area of Operation allowed by any existing certificate

Classification Society Certificate or equivalent held?

How long has the vessel operated in the requested area of operation? _____

NEW BOATS

Name and address of builder / supplier

Completion / delivery date _____

Boatbuilder's Declaration or Classification Society Certificate attached? Yes / No

Declaration by Owners attached? Yes / No

SURVEY/EXAMINATION ARRANGEMENTS

Where will the survey/examination be undertaken?

Anticipated date

Name of Applicant

Address

Contact Telephone No. _____

Signature _____

Appendix Ap3.2 Boatbuilder’s Declaration for a United Kingdom Police Boat

Name of Vessel_____

Official No._____

Vessel type_____

Gross Tonnage/Weight_____

Overall length_____

Port of Registry_____

Name and address of Owner

Where built_____

We hereby declare that the above mentioned vessel has been supplied by us in accordance with the following provisions of the Safety of Police Boats – Workboat Code Edition 3 Annex 3 accepted by the Maritime and Coastguard Agency:

ALL PROVISIONS....or....PROVISIONS/CLAUSE NO. (delete as appropriate)

Builder’s initials/signature _____

Signed _____

For and on behalf of _____

Boatbuilders on _____ 20_____

This declaration does not in itself provide full compliance with the Safety of Police Boats – Workboat Code Edition 3 Annex 3, nor do its contents affect the statutory rights of the customer.

Appendix A3.4 Records of particulars of a Police Boat certified in accordance with the Safety of Police Boats – Workboat Code Edition 3 Annex 3

Vessels certified under the Safety of Police Boats – Workboat Code Edition 3 Annex 3 shall receive a document with the above title, which is issued by the **Certifying Authority**. It is anticipated that the “Record of Particulars of a Police Boat certified in accordance with the Safety of Police Boats – Workboat Code Edition 3 Annex 3” will be very similar to the **SCV2** that the **Certifying Authority** will have produced for vessels operating under the Codes of Practice for Small Commercial Vessels.

