



The Maritime & Coastguard Agency
The Association of Inland Navigation Authorities

Sound practice, safer waters

Inland Waters Small Passenger Boat Code

INLAND WATERS SMALL PASSENGER BOAT CODE

A CODE OF PRACTICE FOR VESSELS OPERATING IN CATEGORY A, B, C and D WATERS, AND OTHER INLAND WATERS

A CODE OF PRACTICE FOR THE CONSTRUCTION, EQUIPMENT, STABILITY, OPERATION, MANNING AND MAINTENANCE OF VESSELS, TAKING INTO ACCOUNT THE AREA AND TYPE OF OPERATION WHICH ARE:

- **IN COMMERCIAL USE FOR SPORT OR PLEASURE; AND**
- **CARRY NO MORE THAN 12 PASSENGERS; AND**
- **DO NOT CARRY CARGO; AND**
- **DO NOT GO TO SEA.**

Association of Inland Navigation Authorities (AINA)

The Association of Inland Navigation Authorities (AINA) was set up in December 1996 with strong encouragement from Government to provide, for the first time ever, a single voice on waterway management issues. The broad purpose of AINA is to facilitate the management, maintenance and development of the inland waterways for navigation as an economic, environmental, recreational and social resource.

AINA has 30 members including the three large navigation authorities – British Waterways, the Environment Agency, the Broads Authority – and also local authorities, drainage commissioners, property development companies, port and harbour authorities, original canal companies, national parks, the National Trust, and other charitable trusts.

Between them, AINA members own, operate and manage some 5,000 km of waterway representing almost a complete UK coverage. Each member has its own constitution, aims and objectives and, in many cases, Acts of Parliament regulating the operation of their waterways.

Maritime and Coastguard Agency

The Maritime and Coastguard Agency is responsible throughout the UK for implementing the Government's maritime safety policy. That includes co-ordinating search and rescue at sea by Her Majesty's Coastguard and checking that ships meet UK and international safety rules.

The MCA is the national competent authority for ship standards, crew competency and health and safety. As such, it is responsible for national standards for inland waterway vessels and training for boatmasters. MCA has provided the secretariat to the working group on the development of the Inland waters small Passenger Boat Code.



Inland Waters Small Passenger Boat Code

Sound practice, safer waters

Until now, there has been no national standard for small commercial vessels (carrying up to 12 passengers) using the UK's inland and estuarial waters.

The Association of Inland Navigation Authorities (AINA) and the Maritime and Coastguard Agency (MCA), however, have published these best practice guidelines, which could be relevant to you.

The Inland Waters Small Passenger Boat Code was developed by a team of industry experts and modified following extensive public consultation. Allowing for each operator's experience and own interpretation of risk, the Code gives safety advice to operators, licensing authorities and regulators.

The Code is available via the MCA's website: www.mcga.gov.uk under Guidance and Regulations, and then Inland Waterways and also www.aina.org.uk.

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Introduction

PLEASE NOTE: Clauses which apply specifically to vessels operating in Category A & B waters are displayed in blue type and those operating in C & D waters are displayed in grey type. Clauses in normal type apply to all categories.

1.1 This Code is a Best Practice Guide for the use of operators, designers, builders, **competent authorities** and users. It is not a statutory Code, but may be applied under mandatory licensing regimes by local competent authorities. The standards it contains should be applied in accordance with the level of risk identified by operators and competent authorities.

1.2 Background

The safety of vessels carrying no more than twelve **passengers** in inland waters was a concern raised at the 1999 meeting of the Maritime Safety Co-ordinating Committee (MSCC) by the South of England District Marine Safety Committee (DMSC). An informal survey revealed that up to 600 such vessels were operating in the UK. It was proposed that a working group be established, involving all interested parties, to develop national standards for these vessels. The organisations involved in this working group are listed at **Annex 1**.

1.3 Audience

The Code, agreed by the Working Group and published jointly by the Association of Inland Navigation Authorities (AINA) and the Maritime and Coastguard Agency (MCA), is designed to assist:

- those operating such vessels, who have duties under health and safety legislation to ensure the safety of their passengers and crew (see paragraph 3.5), by laying down industry best practice;
- those with powers to license or register these vessels and protect public safety, by setting out a national standard which can be used as the basis for vessel licensing/inspection.

1.4 Amendments

The Code will be kept under continuous review to ensure that it remains compatible with other relevant codes and standards. Amendments may be published from time to time. There will be a formal review of the Code not later than five years from the date of publication, and thereafter at intervals not exceeding five years. The most recent amendments will be available via the MCA and AINA websites

www.mcga.gov.uk (under 'Guidance and Regulations' then 'Inland waterways') and www.aina.org and published in relevant boating and waterway magazines.

1.5 Definitions

Definitions of terms in **bold type** used in this Code are defined in **Annex 2**. A list of the Regulations and Publications referred to in this Code, as well as where to obtain copies of them, is listed in **Annex 3**.

2 How to use this code

2.1 It is the responsibility of the **operator** to ensure that a vessel is properly maintained, equipped and manned so that it can be operated safely. This **Code** aims to set out best practice for vessel standards, equipment and operation, as determined by the Working Group and through public consultation, for different areas of operation.

2.2 The primary aim in developing the Code has been to establish standards of safety and protection for all on board, particularly passengers. The level of safety it sets out to achieve is considered to be in line with the current expectations of the general public. The Code relates especially to the construction of a vessel, its machinery, equipment and stability, and to the correct operation of a vessel so that safety standards are maintained.

2.3 Local variations

However, given the range of vessels, operating environments and types of operation that are covered by the Code, it is not possible to cover every situation. This Code is therefore not mandatory, but provides a framework for licensing authorities and operators to use in determining the appropriate standards for the vessels with which they are concerned. In particular, competent navigation or harbour authorities may make variations from this Code which take account of local circumstances.

2.4 Individual discretion

Individual operators may, in the particular circumstances of their operation, be able to achieve an equivalent or higher level of safety using means other than the specified standards. Such departures from the Code should however be based on an adequate risk assessment (see paragraph 3.5 below), and in waterways for which there is a navigation or

harbour authority, should be agreed with the competent authorities.

2.5 Determining factors

Although not an exhaustive list, the following factors should be taken into consideration:

1. area of operation, and likely weather conditions;
2. the ready availability of dedicated emergency rescue (this should not assume the availability of public rescue services or the RNLI);
3. operations wholly within sight of the supervising body and means of emergency rescue;
4. seasonal operations only, such as between 1 April and 31 October or some lesser period, or daytime operations only, in non-flood river flow conditions;
5. vessels operating in close proximity to one another, and equipped to provide efficient safety back-up to each other in an emergency;
6. the provision or wearing of additional (special) individual personal survival equipment or clothing which will protect lives in an emergency;
7. enhanced communications between the vessel(s), and a constantly-attended shore base with readily available emergency rescue craft at the base;
8. the nature of the sport or pleasure activity involves very low risk of participants accidentally entering the water or causing the vessel to capsize;
9. inherent safety of the vessel by design, test and experience;
10. the ratio of suitably trained crew to other persons onboard;
11. enhanced provisions for distress alert and rescue;
12. means provided for “dry” evacuation from a vessel in emergency situations.

2.6 Management

It is recommended that operators use a simple safety management system of the type that is mandatory for **Class V** passenger ships. The purpose of this system is to

1. ensure safety on board for passengers and crew;
2. prevent human injury and loss of life, damage to property or the environment;
3. comply with applicable regulations and rules; and
4. keep documentary evidence of risk assessments and the safety procedures in place.

Guidance is at **Annex 4**.

2.7 Other Local requirements

In addition to the guidance in the Code, the local authority or the port/harbour authority for the area in which the vessel operates may lay down requirements for vessels and/or skippers under relevant laws. In particular, local authorities may require vessels to have **passenger** liability and third party insurance cover, and set the level of cover. Also, local authorities may have powers over the use of the **foreshore** and landing places, and to issue licenses for their use.

2.8 Licensable activities

In particular, the appropriate Local Authority is also the Licensing Authority for alcohol and public entertainment. If licensable activities are carried out on the vessel, a premises licence must be in force. Licensable activities are

- Retail sale of alcohol (which includes provision of alcohol as part of a wider entertainment)
- Public entertainment (ie organised dancing, music, theatre, sports)
- Sale of late night refreshments (hot meals or hot drinks between 11pm and 5pm).

If alcohol is provided on board, then in addition someone responsible for the premises must hold a personal licence issued under the Licensing Act 2003. Further information is available from the Department of Culture Media and Sport website www.culture.gov.uk and from the relevant Licensing Authority, which will publish a statement of its licensing policy.

- 2.9** Where a vessel is certificated or licensed under a local licensing regime for passenger carrying vessels which lay down different standards for the vessel in operation, this code may be used as additional guidance to the operator.

Does the Code apply to you?

3. APPLICATION AND INTERPRETATION

3.1 General

3.1.1 This Code is intended to apply to vessels operating in the UK which do not go to sea and carry no more than 12 passengers. In determining the number of passengers, a passenger is “any person carried on a ship except:

1. a person employed or engaged in any capacity of the vessel’s business;
2. a person on board the vessel, either in pursuance of the obligation laid upon the master to carry shipwrecked, distressed or other persons, or by reason of any circumstance that neither the master nor the owner nor the charterer (if any) could have prevented or forestalled;
3. a child under one year of age”

3.2 Type of Operation

3.2.1 This Code is intended to apply to vessels operating commercially with a skipper or crew, and which only carry passengers. For the purposes of this Code, any vessel that is not a **pleasure vessel** is deemed to be operating commercially (refer to annex 2 for a definition). Examples of relevant vessels include, but are not limited to, an angling or dive vessel operating in estuarial waters, a skippered sailing vessel taking passengers out on a lake, a water taxi, a hotel boat and a narrow boat on a canal doing trips in aid of a restoration project.

3.2.2 Vessels operated by proprietor’s clubs and associations, whether the operator is corporate, private or of a charitable nature, should comply with the Code.

3.2.3 The Code is not intended to apply to:

- Self-drive hire craft or **bareboat charters** (where there is no work activity being carried out by those

hiring the vessel);

- **Pleasure vessels**, as defined in Annex 2 and the Merchant Shipping (Small Commercial Vessels and Pilot Boats) Regulations 2004;

- Vessels operated by establishments licensed by the Adventure Activities Licensing Authority (AALA); For more information about AALA, contact them at

17 Lambourne Crescent
Cardiff Business Park
Llanishen
CARDIFF
CF14 5GF
029 2075 5715
www.aala.org

- Vessels operating as part of Royal Yachting Association recognised training establishments; for further information contact the Royal Yachting Association at

RYA House
Ensign Way
Hamble
Southampton
SO31 4YA
023 8062 7400
www.rya.org.uk

- canoes, kayaks, white water rafts, bell boats, dragon boats or similar, which are covered by guidance issued by the national sports governing bodies. For further information contact the British Canoe Union at

John Dudderidge House
Adbolton Lane
West Bridgford
Notts
NG2 5AS
0115 982 1100
www.bcu.org.uk

- **Beach craft** - There are guidelines for beach craft at **Annex 5**.

3.2.4 For sports bodies, the Government encourages the principle of self-determination to the extent that when it has been necessary to impose some form of control, the policy has been to encourage the bodies to adopt voluntary codes or procedures which would have the same effect as a regulation. A review of safety in water sports in 1990 concluded that the current system of self-regulation developed by the governing bodies of sport was sufficient to meet their responsibility for the safety of sports participants.

3.3 Area of Operation

3.3.1 Different safety standards may apply for vessels operating in different types of waters. This Code is intended only for vessels operating in UK inland waters. Most UK waters used for commercial operations are designated with a Category – Categories A to D - under the *Merchant Shipping (Categorisation of Waters) Regulations 1992*. These are listed in Merchant Shipping Notice 1776(M). The Code may also be applied to vessels operating on inland waters which are not listed –such as enclosed lakes and gravel pits.

3.3.2 Categories A, B, C and D are defined as follows:

Category A: Narrow rivers and canals where the depth of water is generally less than 1.5 metres. (Corresponding to EU inland waterway zone 4).

Category B: Wider rivers and canals where the depth of water is generally more than 1.5 metres and where the significant wave height could not be expected to exceed 0.6 metres at any time. (Corresponding to EU inland waterway zone 3).

Category C: Tidal rivers and estuaries and large, deep lakes and lochs where the significant wave height could not be expected to exceed 1.2 metres at any time. (Corresponding to EU inland waterway zone 2).

Category D: Tidal rivers and estuaries where the significant wave height could not be expected to exceed 2.0 metres at any time. (Corresponding to EU inland waterway zone 1).

3.3.4 Operators should ensure that their vessel meets the appropriate standards for the waters in which it operates, and that the skipper and **crew** members are instructed as to the operating limits. See **Annex 6** for guidance for vessels which make a short transit through waters of a higher category.

3.3.5 Where a vessel operates in UK waters that are not listed in any of the categories (ie such as enclosed lakes and gravel pits), the standards applying to the most appropriate category, as defined above, should be followed. Advice may be obtained from the local Marine Office or navigation authority.

3.3.6 This Code is not intended for vessels that go to sea. “go to sea” means to operate seaward of Category A, B, C or D waters. Commercial Vessels that go to sea are required to comply with the Merchant Shipping (Small Commercial Vessels and Pilot Boats) Regulations [2004] or with Load Line Regulations and associated regulations.

3.4 Standards

3.4.1 Where European (EN) or International (ISO) standards are quoted, these are associated with the European Recreational Craft Directive (Council Directive 98/25/EC), as implemented in the UK by the Recreational Craft Regulations 1996 S.I. 1996/1353.

3.4.2 Where this guidance refers to a British standard, equivalent standards approved by other Member States of the European Community may be followed. See Annex 7 for a statement of mutual recognition of national standards approved by other Member States.

3.4.3 Where a new vessel carries a CE marking attesting to compliance with **the EC Recreational Craft Directive (94/25/EC)**, it can be assumed to comply with the standards laid down in sections 4, 5, 6, 9, 10, 11 and 12 of this Code. In addition it can be assumed to comply with the technical standards quoted in sections 7, 8.1-8.3 and 14, but these sections also contain operational provisions which will apply to an RCD vessel. Moreover, it is the responsibility of the operator to ensure that the vessel is used in accordance with its design Category, and is maintained to the appropriate standards.

3.4.4 In the Categorisation of Waters (see paragraph 3.3 above)

- **Categories A and B are generally coincident with the Recreational Craft Directive design category D – which refers to small lakes, rivers and canals where a significant wave height of up to, and including, 0.5m may be experienced.**
- **Categories C and D are generally coincident with the Recreational Craft Directive (94/25/EC) design category C – which refers to estuaries, large and deep lakes, lochs and tidal rivers where a significant wave height of up to, and including, 2m may be experienced.**

3.4.5 Where a vessel has been issued with a **Boat Safety Scheme Certificate**, this means that it meets the minimum construction and maintenance standards set out by the participating Navigation Authorities relating to the prevention of fire starting and spreading, prevention of explosion and prevention of pollution. Whilst the BSS requirements are generally harmonised with relevant International Standards (quoted in this Code) in some respects they reflect existing UK practice which may be less onerous than the respective BS/EN/ISO requirement. The Boat Safety Scheme is primarily intended to protect against third party risks and does not cover other important areas such as stability and hull integrity.

3.4.6 Neither the Recreational Craft Directive nor the Boat Safety Scheme cover the safe operation of the vessel, and operators should follow the operational guidance which ensures that safety standards are maintained.

3.5 Health and Safety Regulations

3.5.1 The operator of a vessel is responsible for the health and safety of anyone working on the vessel. When the operator employs a skipper/crew, the *Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 (SI 1997/2962)* apply.

3.5.2 Every employer is to be aware of any risks affecting workers and ensure that appropriate measures are taken to minimise these risks through improving

procedures or equipment where necessary and high levels of crew competence. Employers must instruct those affected about the risks and how to ensure their own safety and the safety of others.

3.5.3 The concept of risk assessment is relatively simple, and follows these basic steps:

- Identify the **hazards**
- Assess the chances of a hazardous event occurring
- Assess the severity or consequences, and
- If the combined risk and severity is too great, take action to:
 - remove the **risk**, or if not possible,
 - reduce the risk to as low a level as reasonably practicable (ALARP).

3.5.4 Applying the principles of the health and safety requirements to vessels covered by this Code means that the operator or skipper should take a proactive approach to safety and consider what particular hazards are likely to arise in the context of work activities on board. They should then take appropriate measures to reduce the risks in so far as reasonably practicable. The goal is to provide, as far as reasonably practicable, for a safe working environment, with crew following safe working practices. It may be helpful to record the results of the risk assessment to refer to when the risk assessment is reviewed. Workers must be given appropriate health and safety instruction and information, taking account of the findings of the risk assessment.

The Vessel

Does your boat meet Code requirements?

4. CONSTRUCTION AND STRUCTURAL STRENGTH

4.1 The design of the hull structure, its construction, and the materials and equipment used should be suitable for the service intended, and provide adequate strength and service life for the safe operation of the vessel at its service draught and maximum speed. The design should also withstand the conditions likely to be encountered in the intended area of operation.

4.2 **New vessels** should comply with an appropriate standard such as *ISO 12215 Small Craft Hull Construction and Scantlings*. Alternatively, for canal operation they may comply with the *Canal Boat Builders Association Code of Practice for Steel Inland Waterways Craft and Narrow Boat Construction*.

This can be obtained from:

The Canal Boatbuilders Association
C/O Narrowcraft Ltd, The Boatyard
Alvecote, Tamworth
Staffordshire Tel : 01827 898585

4.3 A vessel may be built to an equivalent standard of safety to the standards in paragraph 4.2 above, but it is recommended that full information (including calculations, drawings, details of materials and construction) is retained for reference.

4.4 Inflatable or **rigid inflatable boat**, in any category, should comply with *ISO 6185-1 Inflatable Boats: Boats with a maximum motor rating of 4.5kW*; *ISO 6185-2: Inflatable Boats: Boats with a maximum motor rating of 4,5kW to 15kW inclusive*; *ISO 6185-3 Inflatable Boats: Boats with a maximum motor rating of 15kW and greater*, or equivalent standards. Alternatively, rigid inflatable craft or craft over 8 meters may be constructed in compliance with paragraph 4.2 above.

4.5 For **existing vessels**, constructed before these standards came into effect, the operator should be able to demonstrate a recent history of safe operation in a similar or more onerous operating category by this vessel or a vessel of similar construction.

4.6 A weed hatch, or rope cutters on the shaft may be fitted where there is a risk of weed and debris fouling the propeller. Where fitted, weed hatches should be at least 150mm above normal laden waterline, and **watertight** when the vessel is both static and in motion.

4.7 The operator should be satisfied themselves as to the soundness and integrity of the vessel's hull, including an appropriate out-of-water examination of the hull, at least every five years (more frequently for wooden hulls), and this should be documented.

4.8 The hull, shell fittings, external steering and propulsion components of the vessel should be examined out of the water. A lesser interval maybe appropriate in consideration of hull construction material or the age or the type and service of the vessel.

5. WEATHERTIGHT INTEGRITY

5.1 A vessel should be constructed so that in the most extreme conditions expected in the area of operation, openings do not allow ready ingress of water, which might threaten the safety of the vessel and those onboard.

5.2 **Open boats** – should comply with bilge pumping or draining provisions set out in Section 10, and **freeboard** as set out in Section 12 and Annex 9.

6. WATER FREEING ARRANGEMENTS/DECK DRAINAGE

6.1 Decked vessels (See definitions in annex 2).

6.1.1 In a **decked vessel**, which complies with the freeboard provisions of Section 12 and Annex 9 of this Code, efficient provision is to be made to clear the deck of water which may be taken onboard. Where water may get trapped, the vessel should have a minimum of two efficient freeing ports – one fitted port and one starboard.

6.1.2 These ports should each have a clear area of:

<u>CATEGORY A AND B</u>	65 sq cm
<u>CATEGORY C</u>	135 sq cm
<u>CATEGORY D</u>	225sq cm.

These figures are based on maximum expected wave heights. Smaller ports may be suitable in a vessel having only small side deck areas, in which water can be trapped, the reduced area being based on the volume of water that is likely to become so trapped.

6.1.3 A motor vessel fitted with a watertight weather deck, which does not meet the freeboard provisions of Section 12 and Annex 9 of this Code, but which possesses adequate reserves of buoyancy above the weather deck, such as landing craft, should satisfy the following conditions:

1. Freeboard to the gunwale edge should be as in Annex 9 of this Code.
2. The recess bounded by the reserve buoyancy and gunwales should meet the standard for quick-draining cockpits, within *ISO 11812 Small Craft - Watertight Cockpits* and *Quick-draining Cockpits*, or equivalent.
3. The vessel should meet the relevant intact stability criteria for transverse stability, and should display positive longitudinal stability for the duration of the drain time.

6.1.4 Alternatively, it may be treated as an open vessel.

6.2 Open Vessel

CATEGORY C and D WATERS: in an open vessel provision should be made to clear water from any deck areas not draining into the bilge.

7. MACHINERY

7.1 General

- 7.1.1 Machinery, fuel tanks and associated piping systems and fittings should be fit for purpose and be of a design and construction adequate for the service for which they are intended. Moving parts, hot surfaces and other hazards should be installed and protected so as to minimise danger to persons during normal movement about the vessel. Materials should be fire resistant or otherwise protected from fire. Plastic fittings at the Hull are not recommended.
- 7.1.2 A vessel should be provided with a fuel tank of sufficient capacity for the main engines, and its area of operation. All fuel tanks vents should be fitted with a flame gauze as required by *BS/EN/ISO 10088*, and carried to at or above tank filling plate level and where there should be no danger from escaping fuel or vapour.
- 7.1.3 Where the machinery is in its own dedicated **compartment** and remote from the operator, means should be provided to isolate a source of fuel, which may feed a fire. A valve or cock, which can be shut from a position outside the engine space should be fitted in the fuel-feed pipe, as close to the fuel tank as possible. Where the machinery is situated directly below the operator, and within easy reach for control and isolation in event of emergency, these conditions need not apply. Petrol tanks for outboards motors should have quick connection shut off devices.
- 7.1.4 Measures should be taken to prevent spillage and build up of flammable vapours in any part of the vessel, including bilges during fuelling.
- 7.1.5 Vessels should have an efficient and reliable starting mechanism. Where the means of starting is by battery, charging facilities for the battery should be available.
- 7.1.6 In **CATEGORY C and D WATERS**: where the sole means of starting is by battery, there should be a duplicate battery connected to the starter motor by a “change over switch” so that either battery or other means of obtaining power can be used to start the engine.

- 7.1.7 All inflatable boats, boats fitted with buoyant collar, and open boats that achieve planing speed, when fitted with remote throttle controls, should be fitted with a kill cord, to be used at all times during navigation.

7.2 Diesel engines

- 7.2.1 A vessel fitted with either an inboard or an outboard diesel engine should be provided with an efficient engine suitable for marine use and with sufficient fuel tankage for its area of operation. Where a vessel is fitted with a fuel tank that has a sight glass, self-closing valves should be fitted to prevent spillage in the event of a breakage.
- 7.2.2 When storing diesel fuels in portable tanks or containers, consideration should also be given to the following:
1. a secure and robust storage unit ,cupboard, bin, cabinet etc. should be provided which is metal and fitted with a means to contain leaks/spills from containers and with direct overside drainage of any spillage;
 2. the storage unit should be located on deck away from direct sources of heat, and should be fire-resistant;
 3. containers should be stored upright and secured, such that they are not likely to shift or fall over with movement of the vessel;
 4. the unit should be suitably labelled according to contents (eg materials stored, hazards signs, no smoking/ignition sources etc);
 5. storage should be suitably distanced from potential sources, or situations where build up of vapours may occur;
 6. diesel type fuels should be stored separately from LPG;
 7. storage locations should not restrict or impede normal movement of people about the vessel or be on escape routes;

8. the storage unit should house both full and empty spare fuel containers (empty containers will contain liquid dregs and vapours).

7.3 Petrol engines

7.3.1 Petrol engines should be a suitable outboard type.

The engine, its fuel systems and tanks should comply with *BS/EN/ISO10088 Permanently installed fuel systems and fixed fuel tanks*, and the following:

1. Fuel tank filling pipes should be arranged so as to ensure that any overflowing fuel will not be discharged into the vessel, including the bilges. Filling pipes should be adequately supported and connected to the fuel tank with leakproof joints. Flexible filling pipes should be suitable for use with petrol and meet the fire resistance test of *BS/EN/ISO 7840 Small Craft Fire resistant fuel hoses (as amended)*, or equivalent.
2. Fuel tanks should be properly secured and be installed as low as is practicable. They should be constructed of a non-corrosive material suitable for use with petrol. Fuel tanks should have a fire resistance of 30 minutes in accordance with *BS 476-20 Fire tests on building material and structures. Methods for determination of the fire resistance of elements of construction (General Principles)* and have sustained a pressure test of 0.25 kgf/sq cm.
3. All fuel tank joints and seams should be efficiently welded, brazed or close rivetted.
4. No fixed petrol fuel tank of more than 2.5 litres should be installed within 1 metre of any engine or heating appliance, unless insulated and protected by an efficient baffle of fire resistant material.
5. Glass or plastic fuel sight gauges should not be used. Fuel level indicators, if fitted, should be of a type which do not allow fuel to escape in the event of damage. Fuel tank dipsticks, when fitted, should only be used via gas-tight fittings.
6. All fuel tank connections should be readily accessible for inspection.
7. Fuel tanks should be effectively bonded by a low resistance metallic conductor to their deck filling plate, and also be effectively bonded to an earth point in direct contact with the water surrounding the hull.
8. The fuel supply should be drawn through the top of the fuel tank, or as near the top of the tank as possible. Only in the case of a gravity feed system should there be a connection from a cock or valve screwed directly in near the bottom of the tank, so that damage to the valve or fuel line cannot dump petrol into the machinery space.
9. Fuel tank balance pipes should not be used in petrol or paraffin engine installations.
10. All fixed fuel feed pipes should be of a metallic material suitable for use with petrol and/ or paraffin.
11. Flexible fuel pipes should be of a material suitable for use with petrol and/or paraffin and meet the fire resistance requirements of *BS/EN/ISO 7840 Small Craft fire resistant fuel hoses*, or equivalent.
12. All fuel pipes should be adequately supported to minimise vibration and strain, and fixed clear of exhaust systems and heating apparatus.
13. All fuel pipe connections should be made with efficient screwed, compression, cone, brazed or flanged joints. Soft solder joints should not be used.
14. All fuel filters should be suitable for marine use, and be of fire resistant quality.
15. Carburettors (other than down-draught type) should be fitted so as to allow any overflowing fuel to drain into a spirit tight metal drip tray – the top of which should be covered with a flame-arresting copper or brass gauze which is mesh-soldered all around the tray. The tray should be removable, or fitted with a cock for emptying.
16. A flame trap or air filter should be fitted to the air intake of any engine.

- 7.3.2 A vessel may be fitted with a small auxiliary engine (usually not more than 5 horse power) manufactured with an integral fuel tank, provided a safety warning sign is displayed with details of the appropriate precautions to be taken when filling the fuel tank.
- 7.3.3 Vessels should supply fuel to the engine from either:
1. (other than inflatable boats) a permanently installed fuel tank constructed to an appropriate standard and, in the case of vessels fitted with a weather-tight deck, should have arrangements such that spillage during fuel handling will drain directly overboard; or
 2. a portable tank of 27 litres or less in capacity complying with an appropriate standard.
- 7.3.4 A suitable hydrocarbon gas detector should be fitted in any enclosed location where an accumulation of hydrocarbon vapours is likely to occur – e.g. under or adjacent to the fixed tank. The detector components in the vapour area should not be capable of causing ignition.
- 7.3.5 Spare portable petrol containers should not be carried onboard unless it is judged to be essential to assure the safe completion of a voyage or excursion. Should this be the case, the containers should be fit for purpose and soundly constructed. They should be clearly marked as containing petrol, and should normally be stowed either:
1. on the deck where they can be readily jettisoned, and where spillage will drain directly overboard; or
 2. in a fire-resistant deck locker with overside drainage.
- 7.3.6 When spare petrol is carried on-board in portable containers, for any purpose, the quantity should be kept to a minimum, the containers should be clearly marked and should normally be stowed on the weather deck where they can readily be jettisoned and where spillage will drain directly overboard.
- 7.3.7 In small vessels where Section 7.3.6 is not practicable, a 5-litre container of petrol may be stowed in a deck locker which meets the requirements of Section 7.3.8
- 7.3.8 Alternatively it may be stowed in a deck locker or protective enclosure which meets the following requirements:-
1. vapour tight to the vessel's interior;
 2. not openable from the vessel's interior; and
 3. adequately drained overboard and ventilated to atmosphere.
- 7.3.9 When storing petrol fuels in portable tanks or containers, consideration should also be given to the following:
1. a secure and robust storage unit ,cupboard, bin, cabinet etc. should be provided, which is metal and fitted with a means to contain leaks/spills from containers and with direct overside drainage of any spillage;
 2. the storage unit should be located on deck away from direct sources of heat, and should be fire-resistant;
 3. containers should be stored upright and secured, such that they are not likely to shift or fall over with movement of the vessel;
 4. the unit should be suitably labelled according to contents (eg materials stored, hazards signs, no smoking/ignition sources etc);
 5. storage should be suitably distanced from potential sources, or situations where build up of vapours may occur. (Note: petrol vapour is heavier than air);
 6. petrol type fuels should be stored separately from LPG;
 7. storage locations should not restrict or impede normal movement of people about the vessel or be on escape routes;

8. the storage unit should house both full and empty spare fuel containers (empty containers will contain liquid dregs and vapours).

7.4 Steam powered engines

7.4.1 A steam powered propulsion engine installation may be used provided that:

1. pressure systems are of appropriate design and manufacturing standard and should have a current "Pressure Systems Inspection Certificate" issued by a recognised competent person. A written scheme of examination describing the exact nature of the examination and the examination frequency should be in place and the system installation should be covered for all risks by a current insurance policy.
2. where the boiler is fuelled by liquid petroleum gas (LPG), the LPG installation should comply with the relevant parts of *BS 5482 –3 Domestic Butane and Propane Gas burning installations in boats, yachts and other vessels or BS/EN/ISO 10239 (amendment no.1) Small Craft.-Liquefied Petroleum gas (LPG) systems.*
3. where the boiler is fuelled by diesel petrol paraffin or similar fuel, the fuel installation should comply with the relevant parts of this code.
4. in the case of a dual fuel installation, no flame failure device should be necessary provided the boiler, when in use, is being constantly attended.

7.5 LPG powered engines

7.5.1 An LPG powered propulsion engine should comply with *The Liquid Petroleum Gas Association Code of Practice No. 18.*

7.5.2 Conversions of engines to dual fuel operation, where LPG constitutes one of the fuels used, are not considered appropriate.

7.6 Electrically powered engines

7.6.1 An electrically powered propulsion engine may be used provided that:

1. the installation complies with the provisions of Section 8 of this Code in so far as they are applicable, and to *The Institution of Electrical Engineers (IEE) Regulations* for the electrical and electronic equipment of ships as is appropriate to the size of the installation.
 2. the arrangement of batteries, including in particular their stowage and adequate ventilation, should comply with the *IEE regulations* – Section 15.
 3. a manually operated master switch, which can be operated from the steering position, should be fitted. It should be capable of cutting off the electrical supply to the propulsion motor.
 4. the connection from the battery charger on board the vessel to the charging point ashore should be by means of a 3-core flexible cable of adequate current carrying capacity, suitably constructed and graded, complying with the slash-proof category of *BS/EN/6030-2, IEC60309-2, Plugs, socket outlets and couplers for industrial purposes - Dimensional interchangeability requirements for pin and contact tube accessories.* The battery charging panel of the vessel should be adequately ventilated and have a positive switch and an indication light to show when charging of the vessel's batteries is taking place.
 5. the battery charging arrangement should incorporate control of the battery compartment exhaust ventilation fan, if fitted, so that the fan is automatically switched ON when battery charging commences and continues for one hour after charging is completed.
 6. the motor and controller compartments should be adequately ventilated.
- 7.6.2 Small electrically powered outboards may be used in the event of an emergency

8. ELECTRICAL INSTALLATION

8.1 The electrical installation is to be such as to minimise the risk of fire and electrical shock. Tanks, machinery or other metallic objects, which do not have good electrical continuity with the water surrounding the vessel, should have special earthing arrangements to reduce such risks. Cables should meet a recognised small craft standard suitable for the intended use. *BS/EN/ISO 10133 Electrical systems – Extra-low-voltage d.c. installations and BS/EN/ISO 13297 Electrical systems – Alternating current installations* give details.

8.2 Reference should also be made to the latest BMEA Code of Practice for electrical installations

8.3 As far as practicable, electrical equipment should not be installed in a space where petroleum vapour or other hydrocarbon gas is likely to accumulate. Where equipment is installed in such a space it should comply with a recognised standard for prevention of ignition of a flammable atmosphere. Refer to *BS/EN28846 (ISO 8846) (Amendment 1) Electrical devices – Protection against ignition of surrounding flammable gas*.

8.4 Where lighting within a vessel is provided by a centralised electrical system, an alternative source of lighting (which may include suitable torches if practical) should be provided, sufficient to:

1. enable people to make their way to the open deck
2. deploy life saving appliances safely
3. illuminate man-overboard rescue equipment and rescue areas
4. permit work on essential machinery.

8.5 Batteries

8.5.1 Batteries should be firmly secured in position.

8.5.2 Where the maximum charging power output exceeds 0.2 kW the batteries should be located in a well-ventilated space. Where the charging capacity exceeds 2.0 kW it should be located in a well-ventilated, dedicated compartment within the vessel or on the open deck.

8.5.3 Where there is environmentally-friendly technology used – e.g. in solar powered vessels – these should comply with current industry best practice and currently recognised safety standards. Where vessels use natural ventilation of battery spaces, and there is a proven record of safe operation, a risk assessment should confirm that there is little risk to life.

8.5.4 Attention should be paid to any battery-operated safety critical equipment to ensure continuous operation in the event of an emergency – e.g. a spare battery and charging facilities where necessary. Safety critical equipment includes, but is not necessarily limited to, communications and navigation lights.

8.5.5 Batteries used to power an emergency outboard motor can be charged ashore when no charging facility is provided onboard

9. STEERING GEAR/STEERING POSITION

- 9.1 A vessel should be provided with an effective means of steering.
- 9.2 The control position should be located so that the person steering the vessel has a clear view for safe navigation.
- 9.3 A risk assessment should consider the consequences of steering failure. Emergency steering arrangements should be provided, where there would be a risk to the safety of passengers.
- 9.4 Arrangements may take the form of a tiller to fit to the head of the rudder stock, or a steering oar as appropriate, taking into account the nature of the operation of the vessel concerned.

10. BILGE PUMPING/DRAINING

- 10.1 All vessels should be fitted with a powered or hand-operated bilge pumping system adequate for the size of the vessel, so that any compartment can be drained. Auto start bilge pumps are recommended, provided they are inspected regularly. To prevent water pollution from oily bilges, a holding tank or similar is recommended.
- 10.2 **In CATEGORY A and B WATERS, small open vessels may carry one or more buckets or bailers instead of a bilge pump.**
- 10.3 To prevent pollution, compartments containing potential pollutants should not be fitted with auto-start bilge pumps. No fixed bilge pump should draw from an oil tight area beneath any engine or gearbox.
- 10.4 **Bilge Alarms**
 - 10.4.1 Consideration should be given to the fitting of bilge alarms in compartments likely to accumulate bilge water (excluding void spaces), and where the rising water would not be obvious to the skipper, or where propulsion machinery is fitted in an unmanned, enclosed, watertight compartment.
 - 10.4.2 If fitted, the alarm should provide an audible warning, and preferably a visual warning also, at the control position.

11. STABILITY

All vessels should comply with the stability requirements given in **Annex 8**. Guidance on practical stability tests for motor vessels is given in **Annex 10**.

12. FREEBOARD

All vessels should comply with the freeboard requirements given in **Annex 9**. Guidance on practical stability tests for motor vessels is given in **Annex 10**.

13. LIFE-SAVING APPLIANCES (LSA)

13.1 Lifebuoys

13.1.1 For the recovery of persons from the water, vessels should carry lifebuoys.

13.1.2 **In CATEGORY A AND B WATERS one suitable lifebuoy should be carried with a buoyant line of at least 18m in length. If operating at night, the lifebuoy should also be fitted with a light. Quoits or throw lines may be used as an alternative.**

13.1.3 **In CATEGORY C AND D WATERS a minimum of two suitable lifebuoys should be carried, at least one with a buoyant line of at least 18m in length. If operating at night one suitable lifebuoy should have a light.**

13.1.4 On vessels where all passengers and crew wear a lifejacket, no lifebuoys are needed. [NB: See Annex 5 - Beach Craft Guidelines].

13.2 Lifejackets and buoyant apparatus

13.2.1 **In CATEGORY A and B WATERS, lifejackets for use in an emergency are not required. Exceptionally, where vulnerable passengers are carried, a risk assessment should be carried out to establish whether, and in what circumstances, lifejackets or buoyant apparatus should be available to assist in the event of an evacuation.**

13.2.2 **IN CATEGORY C and D WATERS, vessels should carry enough lifejackets for all persons on board for use in the event of an emergency.**

13.2.3 Lifejackets can be of a solid buoyancy or inflatable type, and should be approved by MCA (DfT) or under the Marine Equipment Directive (MED) approved "Wheelmarked", or should comply with *BS/EN 396: Life Jackets and personal buoyancy aids of 150N, or BS/EN 399: Life Jackets and personal buoyancy aids of 275N*. Lifejackets that comply with *BS 3595: Specification for Life Jackets*, and with a current servicing certificate where applicable, may for the time being continue to be used where already fitted on a vessel. Lifejackets relying entirely on oral inflation are not appropriate for emergency use, unless they are inflated at all times during operation.

13.2.4 Where vessels operate at night, lifejackets should be fitted with lights.

13.3 Liferafts

13.3.1 **In CATEGORY D WATERS, vessels should carry a liferaft with capacity to accommodate at least the total number of passengers onboard.**

13.3.2 Liferafts are to be of either a DfT approved type (SOLAS or non-SOLAS, including open reversible) or built to the International Sailing Federation (ISAF), Offshore Special Regulations (OSR) Appendix A Part 2 requirements. A liferaft need not be fitted with an insulated floor or canopy.

13.3.3 The liferaft equipment is to be to DfT approved standard and comprise either a "SOLAS B PACK" for the OSR type or the contents of a "DfT (UK) E PACK" (as provided for open reversible liferafts on **Class VI (A)** passenger ships which do not proceed more than 3 miles from land) as follows: -

1. one buoyant rescue quoy with buoyant line;
2. two non-folding safety knives with buoyant handle secured to the liferaft by a line and stowed in a pocket on the upper buoyancy tube adjacent to the painter;
3. one buoyant bailer plus lanyard;
4. two sponges;
5. one sea anchor permanently attached to the liferaft for ready deployment when the liferaft inflates;
6. two buoyant paddles;
7. one first aid outfit in a waterproof case;
8. one whistle or equivalent sound signal;
9. one waterproof electric torch suitable for Morse signaling;
10. two red hand flares;

11. one repair outfit for repairing punctures in buoyancy compartments; and

12. one topping-up pump or bellows.

13.3.4 For each liferaft, the equipment which is not attached to the liferaft may be either packed into the liferaft by the liferaft manufacturer and the contents listed on the certificate for the liferaft or listed and stowed in a suitable protective grab bag which is sited in a prominent position for ready transfer to the liferaft in an emergency.

13.3.5 A liferaft may be either: -

1. preferably stowed on the weather deck in an open space in an approved fibre reinforced plastic (FRP) container and fitted with a float free arrangement (Hydrostatic Release Unit) so that the liferaft floats free and inflates automatically; or alternatively
2. stowed in a FRP container or in a valise in a readily accessible and dedicated weathertight locker or enclosure opening directly onto the weather deck.

13.4 Instructions

13.4.1 An instruction manual should be carried for onboard maintenance of the life-saving appliances. The manual may be kept ashore by the operator in the case of an open boat. It is to include the following where applicable:

1. Check list for use when carrying out inspections.
2. Maintenance and repair instructions (including a list of replaceable parts and sources for spare parts, and a log of records of inspection and maintenance).
3. Schedule of periodic maintenance.

13.5 Maintenance

All life saving appliances should be serviced at the manufacturer's recommended service station at recommended intervals.

14. FIRE SAFETY

- 14.1 Machinery compartment boundaries should be of an adequate standard, such that a fire fighting medium released or injected into the compartment can be retained sufficiently to extinguish a fire.
- 14.2 Sound proofing insulation within the machinery compartment should be non-combustible (not readily ignitable can be accepted in existing vessels) and be impervious to impregnation by oil or oil vapour.
- 14.3 Suitable means are to be provided so that a machinery compartment may be kept clean, and able to contain any oil spillage for discharge to a disposal facility ashore. Oily water should not be discharged overboard.
- 14.4 LPG installations should comply with *ISO 10239: Small Craft – Liquefied Petroleum Gas (LPG) systems* or *BS 5482-3 Domestic Butane and Propane gas burning installations in boats, yachts and other vessels*, (obsolete but still in use within BSS and UK generally). Installations should be inspected annually by a competent person, as defined under *The Gas Safety Installations and Use Regulations (GSIUR)*.
- 14.5 It is recommended that fire resistant or fire retardant materials are used for furnishings and fittings.
- 14.6 On any vessel, where an area is identified as posing a fire risk to either passengers or crew (e.g. galleys, sleeping accommodation), fire detection equipment shall be installed to protect that area.
- 14.7 The fire detectors should be appropriate to the hazard identified (generally smoke detectors) and should give an audible warning that can be heard in the space concerned and in the control position when the vessel is in operation.

14.8 Means of Escape

- 14.8.1 The means of escape should be such that a single hazardous event will not cut off all possible escape routes. Two means of escape should be provided in:

- 1. each compartment used for sleeping or rest; and
- 2. other compartments used for accommodation affected by a fire risk, and
- 3. machinery spaces affected by a fire risk except:
 - a) those spaces visited only occasionally , and where the single access gives ready escape, at all times, in the event of fire; or
 - b) those spaces where any person entering and moving about the space is within 5 metres of the single entrance, at all times.
- 14.8.2 In existing vessels which have only a single means of escape from accommodation spaces, efficient fire detectors should be provided as necessary to give early warning of a fire emergency that could cut off that single means of escape.
- 14.8.3 A vessel should be provided with an efficient escape route or routes, taking into account the passengers to be carried and any restrictions on use of the routes.

15. FIRE FIGHTING APPLIANCES

- 15.1 In a non-decked or partially decked vessel without engine, cookers, heating, lighting or other fuel burning appliances, no fire extinguisher is necessary.
- 15.2 Any inboard engine space should be fitted with a fixed fire extinguishing system which is remotely operated (whether manually or automatically) from outside that space. Such a system may consist of a portable fire extinguisher arranged to discharge into the space, operable without entering the space, eg through a fire hole. This should be suitable for the size of the engine space, but should have a minimum rating of 5A/34B (shown on the extinguisher).
- 15.3 **In CATEGORY A WATERS, vessels with an outboard engine should carry a suitable fire extinguisher**
- 15.4 **In CATEGORY B, a vessel of more than 6m in length should carry a hand-powered or power driven fire pump with sea and hose connections capable of delivering one jet of water to any part of the vessel through a hose and nozzle, or at least one multi-purpose fire extinguisher to a recognised standard with a minimum fire rating of 13A/113B, or smaller extinguishers giving the equivalent fire rating. These should be kept outside the engine space. In addition to the provisions of 15.2 above, one or more fire buckets with lanyards should be provided. Buckets may be of metal, plastic or canvas and suitable for intended use.**
- 15.5 **In CATEGORY C and D WATERS:** a vessel of more than 6m in length should carry a hand-powered or power driven fire pump with sea and hose connections capable of delivering one jet of water to any part of the vessel through a hose and nozzle, or at least one multi-purpose fire extinguisher to a recognised standard with a minimum fire rating of 13A/113B, or smaller extinguishers giving the equivalent fire rating. These should be kept outside the engine space. In addition to the provisions of 15.2 one or more fire buckets with lanyards should be provided. Buckets may be of metal, plastic or canvas and suitable for intended use.
- 15.6 In addition, for all vessels other than those covered by 15.1, there should be at least one multi-purpose fire extinguisher to a recognised standard with minimum fire rating of 5A/34B provided at each exit from accommodation spaces to the open deck. In no case should there be less than two such extinguishers.
- 15.7 If there is a galley or cooking area, a fire blanket of a recognised standard should be provided and located between the door and stove.
- 15.8 Any portable fire extinguisher should be of a type approved by BSI and/or British Approvals of Fire Equipment, European Standard EN3 or under the Marine Equipment Directive and maintained in good condition.

16. COMMUNICATIONS EQUIPMENT

16.1 Communications equipment should be carried for the following purposes, as applicable to the area of operation:

- Navigation: in some areas, there will be local requirements laid down by the harbour authority or navigation authority;
- Emergency communications with local emergency services.

16.2 The local navigation authority and local rescue services should be consulted in order to establish the most effective form of communication, whether VHF or other means. Emergency procedures for establishing contact in an emergency should be prepared. It should be noted that a mobile phone may be sufficient in some areas, but if mobile phone coverage is poor, alternative means should be agreed.

16.3 Mobile phones or portable VHF should be contained in a waterproof pouch, or be waterproof in their own right.

16.4 A card(s) giving a clear summary of the distress communications, urgency and safety procedures is to be displayed in full view of the radio operating position or where mobile communications equipment is carried. It should be in a prominent place where it can be easily reached in the event of an emergency.

16.5 The Global Maritime Distress and Safety System (GMDSS) was implemented on 1 February 1999. The implementation of the GMDSS has involved the adoption of Digital Selective Calling (DSC) for distress alerting in maritime radio frequency bands – e.g. VHF. While the United Kingdom Coastguard will continue coverage of VHF Channel 16 for the foreseeable future, from 1 February 2005, the Coastguard watch on Channel 16 will be downgraded from a dedicated headset watch to a loudspeaker watch. Also, from this date, ships that are currently obliged to keep a listening watch on Channel 16 where practicable,

will no longer be obliged to do so. Where it is considered that VHF should be fitted, with reference to Section 16.2, it is strongly recommended that vessels are equipped with VHF DSC with its significant benefits in distress situations by February 2005.

17. NAVIGATION LIGHTS, SHAPES AND SOUND SIGNALS

- 17.1 Vessels should comply with the requirements of the *Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996, SI 1996 No.75*. In some areas these will be modified by local bylaws, which will be published by the navigation or other local authority – e.g. British Waterways, General Canal Byelaws 1965, Thames Navigation Licensing and general bylaws.
- 17.2 A vessel which operates only between sunrise and sunset is not required by the international regulations to carry navigation lights. However, in areas where there is a risk of collision in poor visibility, it is advisable to use navigation lights. The local Navigation Authority should be consulted if in doubt.
- 17.3 Vessels operating through tunnels should also carry a white spotlight or headlight.
- 17.4 Sound signalling equipment should comply with the Regulations. A vessel of less than 12 metres in length is not obliged, unless required by local byelaws, to carry the sound signaling equipment required by the Regulations on the condition that some other means of making an efficient sound signal is provided.

18. MISCELLANEOUS EQUIPMENT

CATEGORY A and B WATERS

- 18.1 **Appropriate local navigation authority publications should be carried.**
- 18.2 **In all vessels, a water-resistant torch and a suitable boat hook should be provided.**
- 18.3 **An emergency response plan should be carried detailing procedures for calling emergency services, ambulance, fire brigade and coast guard etc. This may form part of the Safety Management System (see paragraph 2.1 and 2.2).**

19. APPROPRIATE NAVIGATIONAL EQUIPMENT

CATEGORY C and D WATERS

- 19.1 Suitable navigation equipment should be carried for the area of operation. This should include an efficient magnetic compass, which is suitably adjusted and provided with a deviation card where appropriate.
- 19.2 Alternatively, a fluxgate compass with suitable electrical back-up supply may be fitted. Where a fluxgate compass incorporates a capability to measure magnetic deviation by undertaking a calibration routine, and where the deviation figures are recorded within the device, a deviation card is not required.
- 19.3 Current or corrected nautical charts, nautical publications and tide time-tables for the area of operation should be carried where appropriate.
- 19.4 Radar reflectors or transponders should be fitted in order to enhance radar visibility. These should be approved to current IMO performance standards, or other means. On small vessels, where it is not practicable for an efficient radar reflector to be fitted, they should not operate in fog, and if visibility starts to deteriorate they should return to their mooring.
- 19.5 A sailing vessel should carry appropriate means of clearing rigging for use in the event of dismasting.
- 19.6 In all vessels, a water-resistant torch (suitable for signalling) and a suitable boat hook should be provided.
- 19.7 An emergency response plan should be carried detailing procedures for calling emergency services, ambulance, fire brigade and coast guard etc. This may form part of the Safety Management System (see paragraph 2.1 and 2.2), and may be in the form of a simple flow chart.

20. ANCHORS AND CABLES

- 20.1 In tidal or flowing water, a suitable anchor and cable or equivalent should be carried, maintained and rigged ready for use (local bylaws may specify requirements).
- 20.2 In still water, appropriate mooring arrangements should be provided. Mooring lines of adequate length for all possible moorings (including in an emergency) should be carried. The vessel should be fitted with bollards or cleats of adequate strength.

21. ACCOMMODATION

- 21.1 Sufficient handholds and grab-rails should be fitted within the accommodation, for the safety of passengers when moving around the accommodation. **In CATEGORY A WATERS, this will mainly be limited to the side of stairs.**
- 21.2 Furniture and heavy items of equipment, such as batteries, cooking appliances etc., should be securely fastened in place to prevent movement. This is not necessary for ordinary furniture on Category A waters, where the risk of severe vessel movement is low.
- 21.3 Stowage lockers containing heavy items are to have lids or doors with secure fastening.
- 21.4 Means of escape from accommodation spaces should be free from obstruction, and clearly marked for their purpose unless they are obvious.
- 21.5 Enclosed spaces which persons may enter should be effectively ventilated. Due regard should be paid to *ISO 10239 Small Craft – Liquefied Petroleum gas (LPG) systems or BS5482- 3 Domestic Butane and Propane gas burning installations in boats, yachts and other vessels*, for gas installations, requiring permanently open vents for open flame devices. For other types of fuel burning appliances refer to the manufacturer's recommendations for ventilation.

22. PROTECTION OF PERSONNEL

- 22.1 To protect persons from falling overboard, and where proper working of the vessel is not impeded, areas where passengers are frequently on deck should be enclosed. Alternatively, guardrails or guard wires to a height of at least 1000mm should be fitted.
- 22.2 **In CATEGORY A and B WATERS, where passengers remain seated throughout the trip, and no other contributory risks are identified, this height may be reduced, except around access points to and from the vessel. Where a vessel has narrow side decks, a handrail should be provided on the side or roof of the vessel. On the foredeck, a centreline handrail may be more workable.**
- 22.3 When application of such measures would impede the proper working of the vessel, alternative arrangements should be made which provide an equivalent level of safety; for guidance see ISO 15085: Man overboard prevention and recovery.
- 22.4 In a non-decked vessel, a safe location within the vessel is to be provided for all persons onboard. If vulnerable passengers may move around open or narrow decks, a risk assessment is recommended to determine whether personal protective equipment (lifejackets, harnesses) should be worn.
- 22.5 **In CATEGORY C and D WATERS, if crew members need to move around exposed decks for the safe operation of the vessel, two safety harnesses should be provided, together with a means for securing lifelines. These could also be used in a man-overboard situation to prevent the rescuer falling overboard. A risk assessment is recommended if passengers may move around open or narrow decks to determine whether other personal protective equipment (e.g. lifejackets) should be provided.**
- 22.6 The surface of a working deck should be non-slip. In an inflatable boat or rigid inflatable boat the upper surface of the inflated buoyancy tube is to be provided with a non-slip finish.

23. FIRST AID KIT

An appropriate first aid kit suitable for crew and passengers, in the area of operation, should be carried and stored in an accessible place.

24. TENDERS (DINGHIES)

If a tender is carried, it should be marked with its carrying capacity and the name of the vessel.

25. PREVENTION OF POLLUTION

- 25.1 The vessel should comply with local bylaws relating to the discharge of waste water. All rubbish should be disposed of at designated and suitable facilities ashore.
- 25.2 No sanitation system capable of discharging sewage overside should be fitted in the vessel unless it is capable of being sealed or rendered inoperable.
- 25.3 Sealed sanitation systems should comply with the requirements of *BS MA101 Specification for toilet retention and re-circulation systems for the treatment of toilet waste on small craft* or equivalent .
- 25.4 An oil-tight tray made of metal or other suitable material should be fitted beneath every engine and gearbox so as to prevent leakage of oil escaping into any part of the vessel or overside. The sides of the tray should be carried as high as practicable. A tray is not needed if oil-tight structural members are fitted fore and aft of the engine. No fixed bilge pump should draw from an oil-tight area.

Manning/crew

26 MANNING – THE SKIPPER

26.1 Minimum qualifications – general

26.1.1 Operators should satisfy themselves that the person in charge of the vessel is competent both to handle the vessel and to deal confidently with passengers. Operators should take account of the following recommendations and the level of risk identified in their operation including considering the worst case scenario. Any certificates and licences of competency or service are to be appropriate to the type of vessel and area of operation in which they are used.

26.1.2 In CATEGORY A and B WATERS, the minimum age of the skipper should be 17 years.

26.1.3 In CATEGORY C and D WATERS, the minimum age of the skipper should be 18 years.

26.2 Boat-handling, knowledge, etc

26.2.1 Operators should satisfy themselves that the skipper has both the appropriate level of competence and relevant practical experience in local operation of the relevant or a similar vessel operating commercially.

26.2.2 In CATEGORY A and B WATERS, the skipper should either hold an appropriate qualification or be able to demonstrate to the operator that he/she is competent for the appropriate area.

26.2.3 The following certificates or courses are recommended:

- MCA Boatmaster's Licence for a local passenger vessel (BML) grade 3 or 2 for the appropriate area;
- British Waterways Boatmanship Licence;
- National Community Boats Association Certificate in Community Boat Management;
- Waterman's Licence issued by a competent authority for the appropriate area, where available.
- Royal Yachting Association (RYA) Powerboat (level 2) with 12 months relevant experience;
- RYA Inland Helmsman's certificate with 12 months relevant experience

26.2.4 In CATEGORY C and D WATERS, the following certificates or courses are recommended:

- MCA Boatmasters' Licence for a local passenger vessel grade 2 for the appropriate area;
- Waterman's Licence issued by a competent authority for the appropriate area, where available.
- RYA Coastal or Day Skipper with 12 months relevant experience;
- RYA Powerboat Level 2 with 12 months relevant experience;

26.3 Communications

26.3.1 The level of training qualifications will depend on the type of communications equipment fitted or carried on board the vessel.

26.3.2 A one-day short-range (approved SRC) VHF radio course would be expected for vessels which are fitted with VHF equipment (see Section 16: Communications Equipment).

26.3.3 Where there is no radio, the skipper should know how to use the available equipment to contact assistance from any point on the route – e.g. a mobile phone, PA, loud hailer, or mega-phone for use on rivers and canals.

26.4 Medical Fitness

26.4.1 The skipper should be medically fit, bearing in mind that he or she is responsible for the passengers in the case of an emergency.

26.4.2 In order to obtain an MCA Passenger BML or RYA Certificate endorsed for commercial purposes, the individual must provide proof of fitness, through completion by a medical practitioner of a medical report form (the ML5).

26.4.3 If the skipper does not hold one of these certificates, the following will be accepted as evidence of medical fitness:

1. Seafarers Medical Fitness Certificate (ENG1 or acceptable non-UK equivalent);
2. Civil Aviation Authority Commercial Pilot's Licence,

3. Health and Safety Executive (HSE) Diving Medical Certificate,

4. DVLA Group 2 Driver's Licence.

For 2. to 4. above, the following will also apply:

1. The validity of the evidence of medical fitness would be that of the "parent" licence – e.g. one year in the case of a CAA commercial pilot's licence.

2. In the case of the HSE diving medical and the DVLA Group 2 licence, evidence of satisfactory colour vision should be checked by an optician (but see paragraph 26.5.3).

3. In the case of the above named equivalent medicals, a declaration should be required, signed by the applicant confirming the following:

1. the contact details of the examining doctor, their consent for the administration to obtain further medical information if required, and the date of the examination; and

2. that they have not had any medical conditions requiring hospital admission, regular prescribed medication, or continuing medical surveillance, since the alternative medical was carried out; and

3. that they have no conditions limiting strength, stamina, or flexibility, such that they could not cope with emergencies on board, such as recovering someone who has fallen overboard or fighting a fire; and

4. that they will seek revised medical fitness certification and submit this to the Administration if the licence accepted as evidence of medical fitness is revoked for any reason, or if they suffer any illness or accident affecting their fitness to operate the vessel, during the period of the licence/certificate.

26.4.4 Otherwise the skipper should provide his or her employer with a self-declaration of fitness for the operation, confirming that he or she suffers from none

of the conditions listed in Annex 11. Where any of the listed conditions are present, this may indicate a high risk of incapacity. This would be inappropriate for the skipper, who is responsible for passengers at all times. It is therefore recommended that medical advice is sought on the fitness of the individual to carry out his or her duties.

26.5 Eyesight Standards

26.5.1 Satisfactory eyesight standards are included in the arrangement for the medical certificates and reports mentioned above.

26.5.2 For those who do not hold a medical certificate, the employer should carry out a test, such as reading a notice – e.g. a numberplate at a set distance of 20.5 metres (67ft) using glasses or contact lenses if necessary. If glasses or contact lenses are required to meet this standard, they should be worn on the vessel at all times.

26.5.3 Evidence of satisfactory colour vision is needed where navigation lights may be encountered, but **this does not apply in Category A canals.**

26.6 Basic Sea Survival Course/Water Safety

26.6.1 It is recommended that those operating a vessel under this Code should attend a basic training course on water safety, including personal survival and rescuing others from the water.

26.6.2 For CATEGORY A and B WATERS, appropriate training courses, not currently requiring MCA approval, are available for inland and inshore vessels. Courses run by the Royal Life Saving Society would be suitable for river or canal boats.

26.6.3 For CATEGORY C and D WATERS, approved courses for seafarers are widely available at many maritime colleges. Contact details are available from the Seafarer Standards Branch, MCA. Other training providers, including the RYA, also provide appropriate courses.

26.7 Life Saving Appliances (LSA)

The skipper should be able to demonstrate knowledge of the location and use of LSA on board, and be able to demonstrate to passengers, where appropriate, how to obtain and put on a life jacket/buoyancy aid.

26.8 Fire Fighting

The skipper should be able to demonstrate knowledge of the location and use of fire fighting appliances on board, and the procedure for summoning assistance and evacuating the vessel.

27. RESPONSIBILITY OF THE OPERATOR FOR SAFE MANNING OF THE VESSEL

27.1 It is the responsibility of the operator to ensure that the skipper and, where necessary, the crew of the vessel have, in addition to any qualifications, recent and relevant experience of the type and size of vessel, the machinery on the vessel, and the type of operation in which the vessel is engaged. The operator should also assess whether additional crew are needed, and what training or expertise they may need, having regard to the type and duration of voyage or trip being undertaken.

27.2 In some cases, vessels will operate in higher risk areas – e.g. through locks and tunnels – and also have higher risk passengers on board. In these instances, it is recommended that a risk assessment be carried out. The operator should ensure that there are sufficient persons on board with relevant experience to cope in the case of an emergency.

27.3 The following factors should be taken into consideration:

1. Locks where additional crew may be needed to control the vessel and operate the lock.
2. Tunnels where additional crew may be needed to summon assistance in the event of an emergency occurring within the tunnel.
3. Passengers where additional crew may be needed to assist disabled passengers.
4. Children where additional crew may be needed to supervise unaccompanied children.

27.4 At all times there should be a person with adequate experience in charge of steering the vessel. The following factors must be taken into account:

1. the present and forecast state of the weather and visibility,
2. the proximity of navigational hazards,
3. the density of traffic in the area,
4. and the present and forecast water level and flow conditions.

28 ADDITIONAL CREW MEMBERS

- 28.1 Additional crew members should be able to demonstrate knowledge of emergency procedures, how to contact assistance, and life-saving appliances carried, including how to put on a life jacket/buoyancy aid where appropriate.
- 28.2 It is also important that additional crewmembers are given familiarisation training for the vessel, and are capable of starting and stopping the vessel in the case of an emergency.
- 28.3 It is recommended that 'emergency cards' are displayed at all times with clear instructions on how to act in an emergency. These cards should be placed in one area of the vessel – e.g. at the steering console, and remain there at all times. Pocket-style laminated "emergency cards" may be carried by each crew member.
- 28.4 For additional crewmembers, the minimum age is 16 years. If the skipper or any crewmember is under 18 years of age, health and safety regulations require that a risk assessment is carried out. (*See Marine Guidance Note (MGN) 88 and Merchant Shipping and Fishing vessels (Health and Safety at Work) (Employment of Young Persons) Regulations 1998*).

29. FATIGUE - WORKING TIME REGULATIONS

- 29.1 Fatigue is a serious safety issue and operators should ensure that all vessels operating under the Code are sufficiently manned to avoid the need to work excessive hours.
- 29.2 *The Merchant Shipping (Working Time: Inland Waterway) Regulations 2003, implementing an EC Directive (93/104/EC as amended by 2000/34/EC)* make provisions for mobile workers on inland waterway transport. The rules are based on a 48-hour week, but allow for this to be calculated as an average over a 17-week reference period. Workers are entitled to adequate rest and to 4 weeks paid annual leave. Guidance is available on the MCA website. The regulations are due to come into force on 30 November 2003.

30. FIRST AID COURSES

30.1 The skipper or another member of the crew should hold either a valid

1.Elementary First Aid Certificate, or

2.RYA Small Craft First Aid Certificate, or

3.Certificate issued by the ambulance service or a voluntary society following the successful completion of a first aid course approved by the Health and Safety Executive*

*This course must be adapted to have extra emphasis on the treatment of hypothermia and casualty evacuation.

30.2 First Aid certificates are valid for 5 years from the date of issue. Refresher training is recommended after 3 years, otherwise it may be necessary to retake a full course.

31. SAFETY BRIEFING

At the start of every voyage or trip, the skipper should give a safety briefing to all passengers and crew. See **Annex 12** for topics to be covered. If this is not appropriate (eg short, regular trips), a safety notice could be prominently displayed at the boarding place, giving brief emergency instructions for passengers.

32. DRUG AND ALCOHOL POLICY

The operator should have in place a Drug and Alcohol Policy which should include a statement that no crew member is to be under the influence of alcohol or drugs while in charge of the vessel, or when preparing to take charge of the vessel.

33. REVALIDATION OF CERTIFICATES AND LICENCES

33.1 The skipper should ensure that they keep their knowledge and skills up to date, including having any certificates of competency revalidated by the issuing authority, by undertaking sufficient actual service on a relevant vessel each year. They should continue to skipper the vessel only if they remain medically fit. After a prolonged period of absence, a suitable period of refresher training (which could include working alongside a colleague with recent experience or a current certificate) should be undertaken.

ANNEX 1

DEVELOPMENT OF THE CODE

Organisations involved in the Working Group;

Association of Inland Navigation Authorities (AINA)
Association of Chief Police Officers (ACPO)
Association of Pleasure Craft Operators (APCO)
British Ports Association
Rushton Marine Surveys
British Marine Federation (BMF)
British Waterways
Broads Authority
Chamber of Shipping
The Chief and Assistant Chief Fire Officer's Association (CACFOA)
National Community Boats Association
Environment Agency
Health and Safety Executive (HSE)
Inland Waterways Association
Maritime and Coastguard Agency
Northern Ireland Tourist Board
Port of London Authority
Rail Maritime Transport (RMT)
Royal Yachting Association (RYA)
Scottish Executive
Transport and General Workers Union (TGWU)
UK Harbour Masters Association
Upper Thames Passenger Association
Wales Tourist Board
Yacht Designers & Surveyors Association (YDSA)

ANNEX 2

DEFINITIONS

Bare boat charter – a charter for which the charterer provides the skipper and crew

Boats fitted with a buoyant collar – a rigid inflatable vessel, or a vessel of similar hull form, where the inflatable tubes are replaced by solid, or hollow, buoyant sections.

Class V – a ship carrying more than 12 passengers and engaged in voyages in Category A, B and C waters.

Code – means this Code unless another Code is specified;

Compartment – all living and working spaces within the watertight or fire-resisting boundaries on any one level, which have inter-communicating access.

Competent Authority – for this Code means a local or statutory navigation or harbour authority which has statutory powers to regulate vessels operating within their area.

Contract of employment – whether expressed or implied and if expressed, whether oral or in writing.

Crew – a person employed or engaged in any capacity on-board a vessel on the business of the vessel.

Decked Vessel – a vessel with a weathertight deck at gunwale height or above from stem to stern, but which may have a recessed cockpit provided it is self draining.

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

Existing vessel – a vessel that is not a new vessel;

Foreshore – Area on shore immediately landward of the water's edge, between low and high watermarks.

Freeboard – the distance measured vertically downwards from the lowest point of the upper edge of the weather deck to the waterline in still water or, for an open vessel, the distance measured vertically downwards from the lowest point of the gunwale to the waterline.

Freeboard to downflooding – the distance measured downwards from the lowest point of any downflooding opening to the waterline in still water.

Hazard – a source of potential harm or damage or a situation with potential for harm or damage to people, equipment or property.

Inflatable Boat – a vessel with attains its form through inflatable tubes only, which are not attached to a solid hull.

K G of the Vessel – height of the centre of gravity above the keel. Relates to stability of the vessel.

Length – the overall length from the foreside of the foremost fixed permanent structure to the aftside of the aftermost fixed permanent structure of the vessel.

Members Club – a non-profit distributing members' sports club whose rules, in all material respects, would satisfy the requirements of Schedule 7 of the Licensing Act 1964 (even if it has no bar,) and which is affiliated to a national governing body of sport recognised by one of the Sports Councils of England, Wales, Scotland and Northern Ireland.

Mobile worker – a person employed as a member of the travelling personnel of a ship by an undertaking which operates services for passengers or goods, but does not include persons who are training in a sail training vessel or persons who are engaged in the navigation of, or have no emergency safety responsibility on, such a vessel.

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

New vessel – a vessel to which this Code applies, the keel of which was laid or the construction of lay-up was started on or after the date of publication of this Code (14 February 2004);

Open boats – any vessel which is not a decked vessel.

Operator – the owner or managing agent of the vessel, or any other organisation or person such as the manager, or bare boat charterer, who has assumed the responsibility for operation of the ship from the owner.

Passenger – any person carried in a ship, except:

- (a) a person employed or engaged in any capacity on board the vessel on the business of the vessel;
- (b) a person on board the vessel either in pursuance of the obligation laid upon the master to carry shipwrecked distressed or other person, or by reason of any circumstance that neither the master nor the owner nor the charterer (in any) could have prevented or forestalled; and
- (c) a child under one year of age.

Pleasure Vessel means:

- (A) any vessel which at the time it is being used is:
 - (i) in the case of a vessel wholly owned by an individual or individuals, used only for the sport or pleasure of the owner or the immediate family or friends of the owner; or
 - (ii) in the case of a vessel owned by a body corporate, used only for sport or pleasure and on which the persons on board are employees or officers of the body corporate, or their immediate family or friends; and
 - (iii) on a voyage or excursion which is one for which the owner does not receive money for or in connection with operating the vessel or carrying any person, other than as a contribution to the direct expenses of the operation of the vessel incurred during the voyage or excursion; or
- (B) any vessel wholly owned by or on behalf of a members' club formed for the purpose of sport or pleasure which, at the time it is being used, is used only for the sport or pleasure of members of that club or their immediate family, and for the use of which any charges levied are paid into club funds and applied for the general use of the club; and

- (C) in the case of any vessel referred to in paragraphs (a) or (b) above no other payments are made by or on behalf of users of the vessel, other than by the owner.

In this definition **immediate family** means, in relation to an individual, the husband or wife of the individual, and a relative of the individual or the individual's husband or wife; and "relative" means brother, sister, ancestor or lineal descendant.

*as defined in the Merchant Shipping (Vessels in Commercial Use for Sport and Pleasure) Regulations 1998 – to be superseded by the Merchant Shipping (Small Commercial Vessels and Pilot Boats) Regulations 2004.

Rigid inflatable boat – a vessel with inflatable tubes, attached to a solid hull. The tubes are inflated during normal craft operation.

Risk – the likelihood that a hazard may occur combined with the consequences of the hazardous event.

Sailing vessel – a vessel which is designed to be navigated under wind power alone and for which any motor provided is an auxiliary means of propulsion and/or which possesses a non-dimensional ratio of (sail area) divided by (volume of displacement)^{2/3} of more than 7.

Ship – includes every description of vessel used in navigation

Watertight – capable of preventing the passage of water in either direction

Weathertight – capable of preventing the admission of a significant quantity of water into the vessel when subjected to a hose test.

Worker – any person employed by an employer under a contract of employment including trainees or apprentices.

ANNEX 3

REGULATIONS AND PUBLICATIONS

British, European and International Standards referred to in the Code

BS EN and ISO standards are reviewed and updated from time to time. The most recent standard should always be used. Those quoted in this Annex are current at the time of publication.

BS/EN/ISO 7840:1995 Small Craft Fire resistant fuel hoses

BS 476 - 20:1987 Fire tests on building material and structures. Methods for determination of the fire resistance of elements of construction (General Principles)

BS 5482 – 3:1999 Domestic Butane and Propane Gas burning installations in boats, yachts and other vessels

BS/EN/ISO 10239:2000 Small Craft. Liquefied Petroleum gas (LPG) systems.

BS/EN/ISO 10088:2001 Permanently installed fuel systems and fixed fuel tanks

BS/EN/ISO 10133:2001 Electrical Systems – Extra-low-voltage d.c. installations

BS/EN/ISO 11547:1996 Small Craft – Start-in-gear protection

BS/EN/ISO 13297:2001 Electrical Systems – Alternating current installations

BS/EN 28846:1993 Electrical Devices – Protection against ignition of surrounding flammable gas

BS/EN 6030-2:1998, IEC60309-2:1997, Plugs, socket outlets and couplers for industrial purposes. Dimensional interchangeability requirements for pin and contact tube accessories

BS/EN 396:1994: Life Jackets and personal buoyancy aids of 150N

BS/EN 399:1994: Life Jackets and personal buoyancy aid of 275N

BS 3595:1981: Specification for Life Jackets

BS/MA101:1986 Specification for toilet retention and re circulation systems for the treatment of toilet waste on small craft

ISO 9094- Part1:2002 Fire protection Craft with a Hull length of up to and including 15m

ISO 9094- Part2:2002 Fire Protection Craft with a hull length of over 15m and up to 24m

ISO 6185- Part1:2001 Inflatable Boats: Boats with a maximum motor rating of 4.5kW

ISO 6185-Part2:2001 Inflatable Boats: Boats with a maximum motor rating of 4.5kW to 15kW inclusive

ISO 6185-Part3:2001 Inflatable Boats: Boats with a maximum motor rating of 15kW and greater

ISO 8846:1990 Electrical Devices - Protection against ignition of surrounding flammable gas

ISO 10239:2000 Small Craft – Liquefied Petroleum Gas (LPG) system

ISO 11812:2001 Small Craft - Watertight Cockpits and Quick-draining Cockpits

ISO 12215-1:2000 Small Craft Hull Construction – Scantlings – Part 1: Materials:Thermosetting resins, glass fibre reinforcement, reference laminate

ISO 12215-2:2002 Scantlings – Part 2: Materials: Core materials for sandwich construction, embedded materials

ISO 12215-3:2002 Scantlings – Part 3: Materials: Steel, aluminium, wood, other materials

ISO12215-4:2002 Scantlings – Part 4: Workshop and manufacturing

ISO 12217-Part1:2002 Small craft - Stability and buoyancy assessment and categorisation - Non-sailing boats of hull length greater than or equal to 6 metres

ISO 12217- Part2:2002 Small craft - Stability and buoyancy

assessment and categorisation –Sailing boats of hull length greater than or equal to 6 metres

ISO 12217-Part3:2002 Small craft - Stability and buoyancy assessment and categorisation - Boats of hull length less than 6m

ISO 15085: 2003 Man overboard prevention and recovery

PrEN ISO/DIS 12215– 5: Scantlings Part 5: Design pressures, allowable stresses (not yet published)

British Standards are available from: www.bsi-global.com

British Standards HQ
389 Chiswick High Road
London, W4 4AL
United Kingdom
Tel: +44 (0) 20 89969000

ISO Standards are available from: www.iso.org

International Organization Standardization
1, rue de Varembe
Case Postale 56
CH1211, Geneva 20
Switzerland
Tel: +41 227490111

Merchant Shipping Regulations referred to in the Code

Merchant Shipping (Categorisation of Waters) Regulations 1992 (SI 1992/2687)

Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996 (SI 1996/75)

Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 (SI 1997/2962)

Merchant Shipping (Load Line) Regulations 2000 (SI 2000/1335)

UK Regulations are available from the Stationary Office and on line at www.hmso.gov.uk/stat.htm

Merchant Shipping Notices are available from the MCA website at www.mcga.gov.uk

Other Legislation and Codes referred to in this Code

European Recreational Craft Directive (Council Directive 98/25/EC)

Recreational Craft Regulations 1996 (SI 1996/1353)

Canal Boat Builders Association Code of Practice for Steel Inland Waterways Craft and Narrow Boat Construction

The Liquid Petroleum Gas Association Codes

Contact Address: Pavilion 16
Headlands Business Park
Salisbury Road
Ringwood
Hants
BH24 3PB

The Institution of Electrical Engineers (IEE) Regulations

Contact Address: Savoy Place
London
WC2R 0BL
Tel: +44 (0) 20 72401871

The Gas Safety Installations and Use Regulations (GSIUR) (SI 1998/2451)

The Working Time Directive (93/104/EC as amended by 2000/34/EC)

Licensing Act 2003 – See Houses of Parliament Website

UK Regulations and Acts are available from the Stationary Office and on line at www.hmso.gov.uk/stat.htm

ANNEX 4

GUIDANCE ON SAFETY MANAGEMENT SYSTEM

(Based on MGN 158 (M) - Safety Management Code For Domestic Passenger Ships of Classes III – VI (A))

INTRODUCTION

1. The purpose of this Annex is to provide guidance on how to develop and implement an effective safety management system such as the Safety Management Code for Domestic Passenger Ships.
2. The Code for Inland Waters Small Passenger Vessels covers a wide variety of operational locations and conditions. This guidance is therefore kept brief and simple, so that it can be applied to a wide variety of ships, and developed by each operator to meet the needs of that operation.

GENERAL

3. As part of a safety management system, each operator should create a safe working environment, which should include the following:
4. **A health and safety protection policy. This must address the issues of health, safety and the environment as they affect the operator and his staff, both ashore and afloat. Such a policy might read along the following lines:**

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

5. Under the Merchant Shipping (Prevention of Pollution by Garbage) Regulations 1998 (S.I. 1998/1377) Each operator of a ship of 12 metres or more in overall length should display placards to notify the crew and passengers of the ship’s disposal requirements. MSN 1720(M+F) is relevant and should be consulted.

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

Procedures to ensure safe operation of ships in compliance with the regulations and rules.

7. The regulations and rules which apply to the domestic passenger ships include but are not limited to:
 - Categorisation of Waters;
 - The Merchant Shipping Distress Signals and Prevention of Collisions Regulations;
 - Local Navigation Rules;
 - The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations;
 - Merchant Shipping Notices and Marine Guidance Notes.
8. The operator should draw up simple procedures to ensure that safe working practices are carried out in the operation of the ship. These may be in the form of checklists that can be followed by all personnel.
9. For some ships, it might be appropriate to have permanently exhibited checklists, e.g. in the wheelhouse for navigational items. Alternatively, in a smaller ship, the record could take any suitable form such as a diary as distinct from a specially printed logbook. Whatever form the record takes, such entries should be accepted as evidence of compliance with the **ONBOARD PROCEDURES** requirements.
10. **Lines of communication between personnel, ashore and afloat.**
Responsibility and authority of each employee should be clear. This may be best illustrated in a simple diagram, showing who reports to whom.
11. **Procedures for reporting accidents.**
The requirement for reporting accidents should be well understood by all personnel and in so doing improve the safety culture practised on board.

12. Procedures for responding to emergency situations.

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

HEALTH AND SAFETY PROTECTION POLICY

13. The Merchant Shipping and Fishing Vessel (Health and Safety at Work) Regulations, specifically require the appointment of one or more competent persons to take responsibility for health and safety. That person/persons should be identified. It is the responsibility of the owner/operator to ensure that the policy is complied with, and
14. that the responsibilities are understood.
15. The operator should develop a policy on prevention of alcohol and drug abuse, in the light of the very strong comments made in the THAMES SAFETY INQUIRY Report by Lord Justice Clarke. Where alcohol is served on board, the policy should also stipulate that no alcohol will be served to persons under 18 years of age.
16. Under the Health and Safety Policy, all personnel both ashore and afloat have a duty to take care of themselves and other persons who may be affected by their acts or omissions.
17. It is essential that, in the event of an emergency, there is the ability to communicate with the emergency services via a shore base. The shore base may be the operator office ashore, the local Coastguard, Police or Fire Station, or another office as may be agreed between the ship and the shore base.

RESPONSIBILITIES

18. The Skipper must have authority at all times, to make decisions with regard to the safety of the ship and the persons on board. To ensure that there is no ambiguity regarding the authority of the Skipper, there should be a simple written statement to this effect.

PERSONNEL AND TRAINING

19. All personnel should receive training appropriate to the tasks they undertake. It is the responsibility of the operator to ensure that this training is given, and that the personnel have an understanding of the relevant regulations and rules.
20. As a minimum, this means:
 - 1) for the Skipper, the relevant qualifications;
 - 2) for the crew, training appropriate to their designated duties.
21. Prior to the first occasion of working on the ship, each employee must receive appropriate familiarisation training and proper instruction in onboard procedures. This could include but not necessarily be limited to:
 - mooring and unmooring;
 - launching and recovery of survival craft;
 - evacuation from all areas of the ship;
 - donning of lifejackets (where carried); and
 - use and handling of fire fighting equipment.
22. Where the ship uses locks or sluice gates, on the job training in this process is essential. Relevant training should also be provided to casual staff – ie not regular “crew” – who may be needed to assist in controlling/guiding passengers in the event of evacuation.

ONBOARD PROCEDURES

23. Simple procedures should be developed for the operation of the ship. These should include, but not be limited to:
 - testing of equipment, including steering gear, prior to commencing a passage;
 - navigation and handling of the ship;
 - maintenance routines;
 - bunkering operations;
 - watertight integrity;
 - stability of the ship; and conduct of passengers and crew while on board.

PREPARATION FOR EMERGENCIES

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

25. Where possible, all personnel should be involved in these exercises, both ashore and afloat. (Refer to MSN 1761, paragraph 6). The roles and responsibilities of all personnel in an emergency situation should be developed in accordance with the principles of the Code.
26. The exercises should be recorded. The names of those who participated should also be recorded.

REPORTING OF ACCIDENTS

27. It is a legal requirement under the Merchant Shipping Act to report all accidents. The Merchant Shipping (Accident Reporting and Investigation) Regulations 1994 refer.
28. The regulations apply to all ships. The operator must therefore have a procedure in place to report any accident to the Marine Accident Investigation Branch (MAIB) and/or to an office of the MCA. Additionally, all accidents and near accidents should be recorded and reported to the operator, who should implement corrective action, with the aim of improving safety.

MAINTENANCE OF THE SHIP AND EQUIPMENT

29. Maintenance of the ship and equipment is an essential ingredient of safety management. The equipment should be checked and tested daily when in use; in addition to the tests referred to in the **ONBOARD PROCEDURES** section of this guidance.
30. There should be procedures for a more detailed inspection and maintenance programme of the ship and equipment. The frequency of the inspections should be determined by the operator, but every event should be recorded.
31. A checklist could be employed as an aide memoir for the inspection of equipment.

ANNEX 5

BEACHCRAFT GUIDELINES

1. General

1.1 Section 2.3 and 2.4 recognise that variations to the standards recommended by the Code may provide equivalent standards of safety, taking into account specific local conditions which are certain to exist. This Annex is intended to assist in assessing equivalence for small vessels with a very limited area of operation, which may be unable to meet the certain of the recommended standards laid down by the Code. It provides Local Authorities performing licensing for beach/harbour operations, with a checklist of operational safety management practices for their consideration.

1.2 Variations may be either a direct alternative to a measure specified in the Code or a reduced measure based upon factors that compensate for the reduction.

1.3 Although not an exhaustive list, factors which may be considered include:

1. restricted area of operations [in an area where operating conditions are the least severe that may be expected within the relevant Category of Waters];
2. a guaranteed control of the vessel which restricts operations to conditions such that there is a very low risk of an accident;
3. the certainty of readily available means of emergency rescue;
4. operations wholly within constant sight of the supervising body and means of emergency rescue;
5. seasonal operations only, such as between 1 April and 31 October or some lesser period, or favourable weather restrictions;
6. vessels operating in close proximity to one another and equipped to provide efficient safety back-up to each other in an emergency;
7. provision/wearing of additional (special) individual personal survival equipment/clothing which will protect lives in an emergency;

8. enhanced communications between the vessel(s) and constantly attended shore base with readily available emergency rescue craft at the base;
9. the nature of the sport or pleasure activity involves very low risk of participants accidentally entering the water or causing the vessel to capsize;
10. inherent safety of the vessel by design, test and experience, (not applicable as an equivalent for stability standards or a specified level of life saving equipment);
11. the ratio of suitably trained crew to the number of other persons onboard;
12. the number of safety craft provided to protect the vessels operating commercially for sport or pleasure;
13. enhanced provisions for distress alert and rescue;
14. means provided for "dry" rescue from a vessel in emergency situations.

2. Guidelines for the Safe Operation of Commercially Operated Pleasure Craft Used for Leisure Activities from a Beach or Harbour

- 2.1 Where the operator wishes to operate a vessel under alternative arrangements, for the provision of activities involving the towing of persons such as water-skiing, parascending, etc. the following guidelines should be followed.
 - 2.2 This is not considered an exhaustive list, nor are they relevant to all situations.
 1. All boats should adopt appropriate safety standards or equivalencies set out in the Small Passenger Boat Code for the relevant Category of Waters.
 2. If life saving appliances, recommended under section 13, cannot for practical reasons be carried on the vessel, suitable equivalencies from the section above must be employed.
 3. All tows should be considered part of the towing vessel, and are to be fit for purpose.

4. Boats are to be capable of accommodating all persons they are intended to support including those contained on board the tow, if applicable. [Methods of assessing the number of persons suitable to be carried are contained in the text of this Code of Practice. In general, vessels operating under this Annex should not carry more than 4 persons.
 5. Towing craft should have a minimum crew of two at all times – one to drive, and navigate, the other to watch the tow.
 6. Craft should be fitted with an engine stop cord, to be used at all times.
 7. Operating procedures, and equipment where applicable, are to be in place for recovery of persons from the water, including measures to avoid injury from the boat and machinery. For vessels fitted with conventional propellers, consideration should be given to the fitting of a propeller guard, especially where recovery of persons is commonplace.
 8. Children under the age of 8 should be accompanied by an adult at all times, including when on a tow.
 9. Inflatable tows should be capable of supporting 110% of the maximum manufacturers weight limit, with any one separate inflatable compartment punctured or deflated.
 10. In Category C and D waters, lifejackets are to be worn at all times. For operations where buoyancy aids may be considered more practical, their use may be accepted based on equivalencies stated in section 1 above.
 11. Towlines should be approximately 25 to 30 metres long. A method of quick release in the event of an emergency is to be available.
 12. Parascending lines, harnesses and parachutes are to be inspected daily by the operator, and maintained in accordance with the manufacturers recommendations.
 13. Operating areas and any associated channels for slow speed transit to and from the shore, should be clearly marked.
 14. Operating areas, trading dates and daily hours for operation are to be defined.
- 2.3 Additionally the operator will:
1. hold a nationally recognised qualification for the activity concerned, i.e. water sports instructors certificate.
 2. hold a Local Authority licence/concession to operate, where applicable.
 3. maintain visual contact with the vessels at all times, and provide a means of immediate rescue in the event of an accident.
 4. ensure that vessels and associated equipment are maintained in proper state;
 5. report and record to the Local Authority, where applicable, all incidents which have, or could have led to injury.
 6. ensure a procedure is in place for immediate contact with the emergency services in the event of an accident or incident.

ANNEX 6

GUIDANCE FOR TRANSITING VESSELS

1. Where a vessel makes a short transit through waters of a higher category but not to sea, it may not be necessary to apply all of the standards laid down for that higher category.
2. The operator should make a risk assessment to identify whether any additional safety measures are required. This should be discussed with the appropriate navigation authority. "short transit" means a maximum of five hours cruising.
3. In carrying out a risk assessment the following factors, as a minimum, should be considered:
 - is the transit made with passengers on board?
 - is there a suitable "passage plan" in place, taking account of available navigation information, weather forecasts etc?
 - have points of shelter been identified and evaluated?
 - do weather conditions significantly affect the level of risk on these waters?
 - is the vessel moving from non-tidal or still water into flowing/tidal water?
 - is the vessel likely to encounter a higher sea state or worse weather than the vessel is designed for? (this will be linked to freeboard, ISO design category, if applicable, and passage planning);
 - does the vessel have sufficient engine power to maintain control in these conditions?
 - are the communications equipment and lifesaving appliances suitable for the transit voyage, i.e. would VHF equipment be needed, are there sufficient lifejackets/buoyancy aids?
 - are there adequate protocols for contacting emergency services?
 - are additional competent crew members needed for the transit?

4. Examples of "transit routes" are shown in the following table, but the list is not exhaustive:

Route	Category	Expected Transit time (Actual transit time will depend on the state of the tide etc).
Thames – Brentford to Teddington	B – C	1 hour
Thames – Brentford/ Teddington to Limehouse Basin	A/B – C	5 hours
Severn – Stourport to Worcester Worcester to Tewkesbury Tewkesbury to Gloucester Dock*	A/B - C*	4 hours 5 hours 2 hours * semi tidal waters (spring tide) for 1hr from Lower Lode Lock to Gloucester Dock
Bristol Avon - Bath to Bristol	A – B/C**	4 hours **for 1hr from Hanham Lock to Bristol Floating Harbour
Yorkshire Ouse - Selby to York	A - C	3 hours (max - against flow)
Trent Keadby - West Stockwith	A - C	3 hours (max - against flow)
Trent W. Stockwith – Torksey	A - C	4 hours (max – against flow)
Trent Torksey – Cromwell	A – C	2.5 –5 hours depending on tide strength

ANNEX 7

THE COMMISSION OF THE EUROPEAN COMMUNITIES' GENERAL MUTUAL RECOGNITION CLAUSE

In relation to the standards quoted in this Code, the Commission of the European Communities' general mutual recognition clause applies. The clause states:

Any requirement for goods or materials to comply with a specified standard should be satisfied by compliance with:

1. a relevant standard or code of practice of a national standards body, or equivalent body of a member state of the European Community;
2. any relevant international standard recognised for use in any member state of the European Community;
3. a relevant specification acknowledged for use as a standard by a public authority of any member state of the European Community;
4. traditional procedures of manufacture of a member state of the European community, where these are the subject of a written technical description sufficiently detailed to permit assessment of the goods or materials for the use specified, or
5. a detailed specification to permit assessment for goods or materials of an innovative nature (or subject to innovative processes of manufacture, such that they cannot comply with a recognised standard or specification) and which fulfil the purpose provided by the specified standard – provided that the proposed standard, code of practice, specification or technical description provides, in use, equivalent levels of safety, suitability and fitness for purpose.

ANNEX 8

STABILITY

For the purposes of this Section, where vessels are to operate in fresh water, the stability tests defined within this Section are to be conducted in the area of operation, as appropriate.

1. Motor Vessels

- 1.1 A vessel should be tested in the fully loaded condition (which should correspond to the freeboard assigned) to ascertain the angle of heel and the position of the waterline which results when all persons which the vessel will carry are assembled along one side of the vessel. (The helmsman may be assumed to be at the helm.) Each person may be substituted by a mass of 75kg for the purpose of the test. Annex 10 gives guidance on how to carry out a simple heel test.

The vessel has an acceptable standard of stability if the test shows that:

- 1.the angle of heel does not exceed 7 degrees, and
- 2.in the case of a vessel with a watertight weather deck extending from stem to stern, the **freeboard to downflooding** is not less than
100mm for Category A vessels
175mm for Category B vessels
275mm for Category C vessels
375mm for Category D vessels,
and additionally, the freeboard to deck is not less than 75mm at any point.
- 3.the angle of heel may exceed 7 degrees, but should not exceed 10 degrees, if the least freeboard to downflooding in the heeled condition is in accordance with Annex 9 of the Code for the upright condition.

- 1.2 In all cases, the maximum permissible weight of passengers derived from the tests conducted should be

recorded for reference. Vessel loading should be restricted by the position freeboard mark and maximum permissible weight, and thus for the purposes of this test, attention should be paid to any activity related equipment where this may be significant, e.g. diving equipment.

- 1.3 It should also be demonstrated that an open boat, when operating in Category C and D waters, when fully swamped, is capable of supporting its full outfit of equipment, the total number of persons which it will carry, and a mass equivalent to its engine and full tank of fuel.
- 1.4 Vessels complying with ISO 12217-1 Small craft - Stability and buoyancy assessment and categorisation - Non-sailing boats of hull length greater than or equal to 6 metres, or ISO 12217-3 Small craft - Stability and buoyancy assessment and categorisation - Boats of hull length less than 6m, may as an alternative to 1.1 to 1.3 above, be assigned an area of operation as follows:

IN CATEGORY A and B WATERS, ISO 12217 Design Category D applies.

IN CATEGORY C and D WATERS, ISO 12217 Design Category C applies

- 2. Inflatable Boats or Boats Fitted with a Buoyant Collar**
- 2.1 The heel test provisions stated previously are not appropriate for an inflatable boat, rigid inflatable boat or those vessels with a buoyant collar. Unless a boat to which this Code applies is completely in accordance with a standard production type (refer to relevant part of BS/EN/ISO 6185-1,2,3:2001), for which a certificate of approval has been provided for the tests, the tests detailed below should be carried out.

On a boat floating in still water :

- 2.2 Stability Tests**
- 2.2.1 The tests should be carried out with all the vessel's equipment, fuel, cargo, activity related equipment – e.g. diving equipment – and number of persons which it will carry. The engine, equipment and cargo may be replaced by an equivalent mass. Each person may be substituted by a mass of 75kg for the purpose of the tests.

2.2.2 The maximum number of persons which a boat will carry should be crowded to one side, with half this number seated on the buoyancy tube. This procedure should be repeated with the persons seated on the other side and at each end of the inflatable boat, rigid inflatable boat or vessel with a buoyant collar. For the purposes of these tests, the cargo may be assumed to be in its normal stowage position. In each case, the freeboard to the top of the buoyancy tube should be recorded. Under these conditions, the freeboard should be positive around the entire periphery of the boat.

2.3 Damage Tests – Inflatable Boats

2.3.1 The tests should be carried out with all the vessel's equipment, fuel, cargo, activity related equipment – e.g. diving equipment – and number of persons which it will carry. The engine, equipment and cargo may be replaced by an equivalent mass. Each person may be substituted by a mass of 75kg for the purpose of the tests:

2.3.2 The tests will be successful if, for each condition of simulated damage, the persons for whom the inflatable boat or rigid inflatable boat is to be certificated are supported within the inflatable boat or rigid inflatable. The conditions are:

1. with forward buoyancy compartment deflated (both sides if appropriate).
2. with the entire buoyancy, from the centreline at the stem to the transom, on one side of the inflatable boat or rigid inflatable boat deflated.

2.3.3 Purely inflatable boats failing to meet Section 2.3.1 may be specially considered taking into account operational service limitations.

2.4 Person recovery stability test:

2.4.1 Two persons should recover a third person from the water into the inflatable boat or rigid inflatable boat or vessel with a buoyant collar. The third person should feign to be unconscious and be facing away from the inflatable boat or rigid inflatable boat so as not to assist the rescuers. Each person involved should wear

an approved lifejacket. The stability of the inflatable boat or rigid inflatable boat should remain positive throughout the recovery.

2.5 Swamp Test (for CATEGORY C and D WATERS ONLY)

2.5.1 It should also be demonstrated that an inflatable boat, or rigid inflatable boat or vessel with a buoyant collar, when fully swamped, is capable of supporting its full outfit of equipment, the total number of persons which it will carry, and a mass equivalent to its engine and full tank of fuel.

2.5.2 In the swamped condition, the inflatable boat, rigid inflatable boat or vessel with a buoyant collar, should not be seriously deformed.

2.5.3 A practical means of draining the boat should be demonstrated at the conclusion of this test. This should not include the use of electric bilge pumps.

3 Sailing Vessels

3.1 The stability of a vessel should be determined by the methods detailed below, and its area of operation should be dependent upon the standard, which it is shown to achieve.

3.2 Vessels without external ballast keels

Method 1: Vessels complying with ISO 12217-2:2002 Sailing boats of hull length greater than or equal to 6 metres or ISO 12217-3:2002 Small craft - Stability and buoyancy assessment and categorisation - Boats of hull length less than 6m, may as an alternative, after verification of the stability assessment, be considered safe to operate in an area of operation as follows:

IN CATEGORY A and B WATERS, ISO 12217 Design Category D applies.

IN CATEGORY C and D WATERS, ISO 12217 Design Category C applies.

Method 2: It should be demonstrated that the vessel has a minimum range of stability, depending on its length, as determined from the following formula:

CATEGORY A AND B WATERS

$$\text{Minimum range of stability (degrees)} = 90 + \frac{60 \times (6 - \text{LOA})}{25}$$

CATEGORY C AND D WATERS

$$\text{Minimum range of stability (degrees)} = 90 + \frac{60 \times (18 - \text{LOA})}{25}$$

In all cases the minimum required angle is not to be taken as less than 90 degrees

3.2.2 Sailing dinghies not assessed using *ISO 12217-2:2002 - Small non-decked boats generally in the range of 2.5 to 6 metres in length which are not capable of being mechanically propelled* - and small unballasted sailing dayboats are to be capable of being righted by their crew after an inversion.

3.3 Vessels fitted with external ballast keels

3.3.1 The stability assessment of a vessel may be made by any one of the following methods:

Method 1: Vessels complying with *ISO 12217-2:2002 Sailing vessels - Non-sailing boats of hull length greater than or equal to 6 metres' or (ISO 12217-3:2002 Small craft - Stability and buoyancy assessment and categorisation) - Boats of hull length less than 6m*, may as an alternative, after verification of the stability assessment, be assigned an area of operation as follows:

IN CATEGORY A and B WATERS, ISO 12217 Design Category D applies.

IN CATEGORY C and D WATERS, ISO 12217 Design Category C applies.

Method 2: by the 'Sail Training Operational Stability (STOPS)' Numeral developed by the Royal Yachting Association (RYA).

Notes:

- i. For vessels fitted with one or more top-weight items, examples of which are given below, the ballast ratio should be modified as follows:

- ii. Moments are to be taken about the vertical centre of gravity, which is assumed to be at the waterline. The heeling moments attributed to the top-weight items are resolved, and the ballast weight is reduced, using the formula below.

$$\text{CBW} = \frac{\text{TW} \times \text{H}}{(\text{DCB} + \text{DK}/2)}$$

Noting that:

CBW is the correction to the ballast weight.

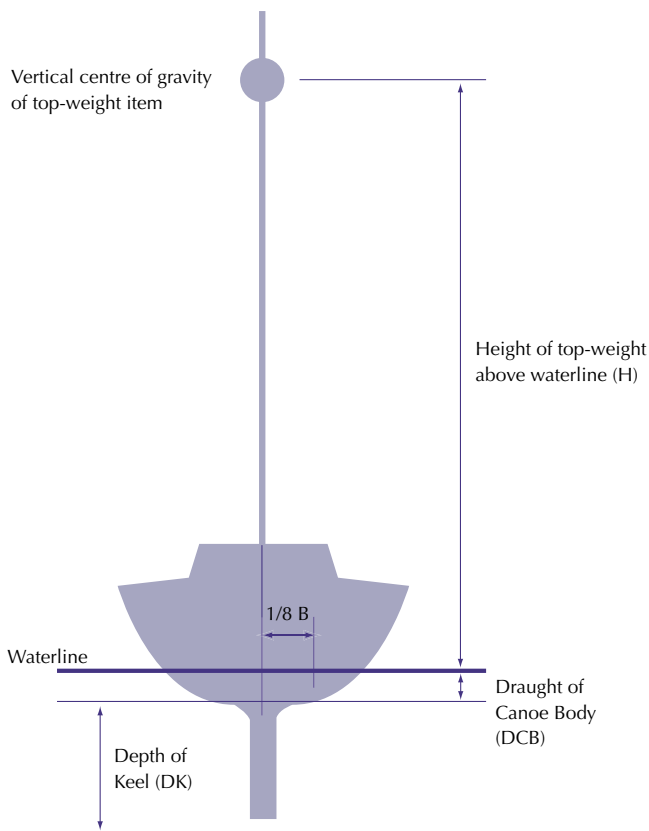
TW is the weight of the top-weight items being considered.

H is the height of the vertical centre of gravity above the waterline.

DCB is the draught of the canoe body, taken by measuring the maximum draught at 1/8 of the full beam from the centreline in way of the transverse Section, at greatest beam.

DK is the depth of the keel, taken as the distance between the draught of the canoe body and the bottom of the keel.

The dimensions above are illustrated in Figure 2 below.



Examples of top-weight items are given below:

- in-mast or behind-mast roller furling mainsail; roller furling headsail.
- a radar antenna mounted higher than 30% of the length of the vessel above the waterline.

The vessel should achieve a STOPS3 numeral of 11 or higher

A “SSS” numeral calculated by the Royal Ocean Racing Club (RORC) will be accepted in place of a STOPS numeral, provided that it includes a self-righting factor based on an inclining experiment and shown on a valid International Rating Certificate (IRC) or International Measurement System (IMS) rating certificate.

3.4 Alternatively, it should be demonstrated by test or calculation that an open **sailing boat**, when fully swamped, is capable of supporting its full outfit of equipment and the total number of persons which it is to carry.

4 Sailing Multihull Vessels

4.1 All sailing **multihull vessels** are to be assessed by the full application verified or performed, as required, of *ISO 12217-2:2002 Small craft - Stability and buoyancy assessment and categorisation – Part 2: Sailing boats of hull length greater than or equal to 6 metres, or ISO 12217 Part 3: Small craft - Stability and buoyancy assessment and categorisation - Boats of hull length less than 6m*. After verification of the stability assessment, vessels may be assigned an area of operation as follows:

IN CATEGORY A and B WATERS, ISO 12217 Design Category D applies.

IN CATEGORY C and D WATERS, ISO 12217 Design Category C applies.

ANNEX 9

FREEBOARD

1 General

For the purposes of this Section, where vessels are to operate in fresh water, the minimum freeboards defined within this Section are to be taken in the area of operation, as appropriate.

1.1 Where stability is assessed using any part of ISO 12217, freeboard is to be assigned using the appropriate part of that standard.

1.2 **Annex 10** gives simple guidance on how to measure freeboard.

2 Motor Vessels

2.1 **IN CATEGORY A and B WATERS**, all vessels operating in category A waters, or decked vessels operating in category B waters, should have an minimum freeboard to deck edge or gunwale of 250mm around the periphery of the vessel in the most onerous loading condition. For open vessels operating in Category B waters, this requirement should be increased to 400mm if they are unable to pass the swamp test as detailed in Annex 8 Section 1.3.

2.2 **IN CATEGORY C and D WATERS**: Minimum freeboard to downflooding, for vessels whose stability has not been assessed in conjunction with ISO 12217 –1 or 3, should be not less than that determined by the following provisions.

2.3 A vessel, other than an inflatable or rigid inflatable boat, or a boat covered by Section 2.2, when fully loaded with passengers and deadweight items to be carried (each person taken as 75kg) should be upright and:

1.in the case of a vessel with a continuous watertight weather deck in accordance with Section 6.1.2, which is neither stepped nor recessed or raised, have a freeboard to downflooding of not less than:-

Category C

360 mm for vessels of 7 metres in length or under and not less than 630 mm for vessels of 18 metres in length or over.

Category D

600 mm for vessels of 7 metres in length or under and not less than 1050 mm for vessels of 18 metres in length or over.

For a vessel of intermediate length the freeboard to downflooding should be determined by linear interpolation.

2. in the case of a vessel with a continuous watertight weather deck, have a freeboard to deck measured down from the lowest point of the deck of not less than:-

Category C

120 mm for vessels of 7 metres in length or under, and not less than 240 mm for vessels of 18 metres in length or over.

Category D

200 mm for vessels of 7 metres in length or under, and not less than 400 mm for vessels of 18 metres in length or over.

For a vessel of intermediate length, the freeboard should be determined by linear interpolation. The raised portion(s) of the watertight weather deck should extend across the full breadth of the vessel and the average freeboard to deck over the length of the vessel should comply with .4 below for a vessel with a continuous watertight weather deck.

3. in the case of an open boat, have a clear height of side – eg. the distance between the waterline and the lowest point of the gunwale* – of not less than

Category C

240mm for vessels 7 metres in length or under, and not less than 480mm for vessels 18 metres in length or over.

Category D

400mm for vessels 7 metres in length or under, and not less than 800mm for vessels 18 metres in length or over.

For a vessel of intermediate length, the clear height should be determined by linear interpolation.

* The clear height of the side should be measured to the top of the gunwale or capping, or to the top of the wash strake if one is fitted above the capping.

4. for vessels complying with points 1 and 2 above, the freeboard to deck edge should, in general, be not less than 50% of the required freeboard to downflooding.

3 Inflatable boats in all Categories

- 3.1 The freeboard of an inflatable boat, or rigid inflatable boat, should be not less than 300mm measured from the upper surface of the buoyancy tubes, and not less than 250mm at the lowest part of the transom. With the inflatable boat, or rigid inflatable boat, in the following conditions, and with the drainage socks (if fitted) tied up:
1. the inflatable boat or rigid inflatable boat with all its equipment,
 2. the inflatable boat or rigid inflatable boat with all its equipment, engine and fuel, or replaced by an equivalent mass,
 3. the inflatable boat or rigid inflatable boat with all its equipment, fuel, cargo, activity related equipment – e.g. diving equipment – and the number of persons which it is to carry, so arranged that a uniform freeboard is achieved at the side buoyancy tubes; and
 4. the inflatable boat or rigid inflatable boat with all its equipment, fuel, activity related equipment – e.g. diving equipment – and the number of persons which it is to carry, and the inflatable boat re-trimmed as necessary to represent a normal operating condition.
- 3.2 The minimum freeboards recorded during the tests, and the permissible maximum weight which can be carried, should be recorded.
- 3.3 For inflatable boats or rigid inflatable boats, which do not meet the above freeboard provisions, may still be

acceptable provided it can be demonstrated that the boat is self-draining when moving ahead, and has a substantial reserve of buoyancy.

ANNEX 10

GUIDANCE ON FREEBOARD MEASUREMENT FOR MOTOR VESSELS AND STABILITY ASSESSMENT (HEEL TEST)

Freeboard Measurement

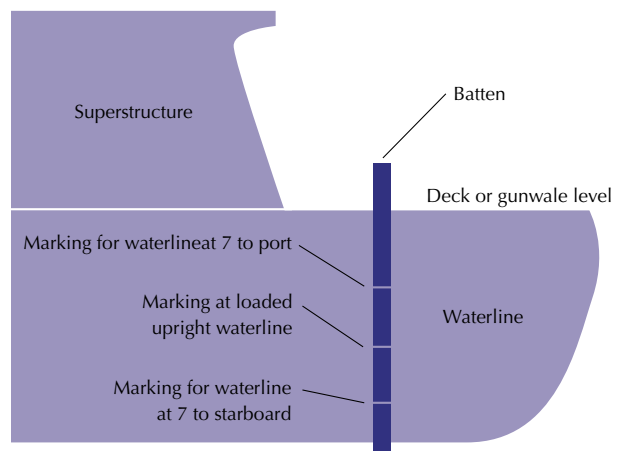
1. The boat should be tested with the maximum number of persons (passengers and crew) onboard, in the fully loaded condition i.e. with full tanks, full stores etc. The persons and equipment should be positioned as to represent the “in service” condition of the boat. The boat should be at its normal working trim and have no angle of heel. If so required, each person may be represented by a weight of 75kg. Arrangements should be made in order to allow a person outside of the vessel to take all measurements.
2. In this condition the freeboard of the boat should be measured in accordance with paragraphs 2 or 3 of Annex 9. In the case of vessels operating in Category A and B waters, the measurement is the freeboard from the surface of the water to the lowest part of the deck, or top of gunwale if on an open boat. In the case of a vessel operating in Category C and D waters, the measurement is freeboard to downflooding. The downflooding point is defined as the lowest point around the periphery at which water can enter the vessel’s interior or bilge. For instance, this could be a machinery space ventilator, or could be the deck level where there is a companionway leading below. Where a downflooding opening is fully protected by a higher coaming, the downflooding height is measured to the lowest point of that coaming.

Stability Assessment (Heel test)

3. Having measured the freeboard, a heel test should be carried out. Battens should be fitted to the outboard sides of the boat, at amidships or at the portion of least freeboard where this is not at amidships. The distance, in millimetres, between the battens should be measured and recorded.
4. When the boat has been loaded with weights as described in paragraph 1, the waterline (port and starboard) is to be

recorded by marking the battens at the waterline. Each batten should also then be marked with lines representing angles of heel of plus or minus 7°. This can be calculated as follows, which correspond to waterlines of:

$$\text{plus or minus } \frac{12.3 \times \text{Distance between battens (millimetres)}}{200}$$



5. The number of persons for which the vessel is to be tested, are to be transferred to one side of the vessel. Persons are to be situated at the furthest outboard position that they may practically achieve. For example this would be inside the gunwale on an open boat, or at the railings of a decked vessel, where persons would normally be situated outside. For vessels with narrow side decks, that are used for brief transiting purposes, these need not be assumed occupied during the heeling test.
6. The waterlines at this angle of heel should be marked on the battens. In order to achieve a heel angle of less than 7°, this marking should be within the bounds of the previously marked waterlines on the battens. See diagram above.
7. Steps 5 and 6 should then be repeated, with the persons transferred to the other side of the boat.
8. Should the vessel exceed 7° heel to either side, and should the operator not wish to reduce passenger or crew numbers, the stability may be assessed using 10.1.1.3 of the Code. Battens should be further marked for heeled waterlines at 10°, corresponding to:

plus or minus $\frac{17.6 \times \text{Distance between battens}}{200}$ (millimetres)

from the original upright waterline. The vessel should then be heeled again as per Steps 5, 6 and 7. The heeled waterlines are to be marked and verified to be within the 10° limits. Additionally the freeboard (either to deck or downflooding as appropriate) should be measured in the heeled condition, and is to meet the requirements of Step 2 while in that condition.

ANNEX 11

LISTED MEDICAL CONDITIONS

In accordance with section 26.4, the Skipper of a passenger vessel operating under this Code should either hold a medical fitness certificate, or should provide a declaration of fitness, confirming that he or she does not suffer from any of the following medical conditions.

1. Epileptic seizures / disturbances of the state of consciousness (other than simple syncope)
2. Coronary Thrombosis or Heart Surgery
3. Problems with heart rhythm, disease of the heart or arteries
4. Blood pressure controlled by drugs
5. Diabetes controlled by Insulin
6. Stroke or unexplained loss of consciousness in the last 5 years
7. Severe head injury with continuing effects
8. Parkinson's disease or Multiple Sclerosis
9. Mental or nervous problems in the last two years
10. Alcohol or drug addition in the last two years
11. Profound deafness - unable to use telephone or radio
12. Double or tunnel vision
13. Malignant brain tumour in the last five years
14. Any condition which would cause problems regarding your fitness to navigate a vessel.

Where any listed conditions are present the individual or the operator is advised to take medical advice on whether the individual is medically fit to perform his or her duties, including assisting passengers in the event of any reasonably foreseeable emergency situation.

ANNEX 12

SAFETY BRIEFING

1. Before the commencement of any voyage the skipper should ensure that all persons onboard are briefed on emergency procedures, the location of emergency exits, and, if carried, on the stowage and use of personal safety equipment, such as life-jackets, thermal protective aids and lifebuoys. The nominated first aider should also be introduced.
2. In addition, the skipper should brief at least one other person who will be going on the voyage or trip regarding the following, as applicable:-
 1. Location of liferafts and the method of launching;
 2. Procedures for the recovery of a person from the water;
 3. Location and use of fire-fighting equipment;
 4. Procedures and operation of communications equipment;
 5. Location of navigation and other light switches;
 6. Method of starting, stopping, and controlling the main engine; and
 7. Method of navigating to a suitable place of safety

Safety cards will be considered to be an acceptable way of providing the above information.



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