British Marine Federation

Association of Inland Navigation Authorities

Maritime and Coastguard Agency

Code for the Design, Construction and Operation of Hire Boats.

Part1: Power driven boats.

Issue 1. Technical and Operational Standards

June 2009

Change record

Issue	Date	Change
1	June 2009	First issue.

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Definitions

1 'Hire boat' means a vessel not intended for the carriage of more than twelve persons, offered without a skipper or crew for the sport or pleasure of those onboard, which is not a 'pleasure vessel'[1] as defined in the Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 1998, SI 1998, No, 2771, and that does not proceed to sea.

The above definition is considered to include vessels with no skipper or crew provided which are:-

- *let or hired under an arrangement, whether or not on a pre-contract basis*
- *the subject of a bare boat charter arrangement*
- *the subject of any form (including timeshare) of shared use arrangement where the boat is not wholly owned by individuals and used by them, or their immediate family[2] or friends*
- *used by persons who are not friends or immediate family[2] of the owners. (Note that money does not have to change hands for the vessel to be considered a 'hire boat'.)*

Excluded from this definition of 'hire boat' are boats with no skipper or crew provided which are:

- *houseboats or other vessels that are permanently attached to their moorings;*
- *used by the friends or immediate family of the owners and where any payment is only in respect of direct operating costs during the voyage;*
- *owned by a members' club for use by its members or their immediate family where any payments made for its use are paid into club funds for the general use of the club;*
- *owned by a body corporate for the use of its employees or their friends or immediate family whether or not the user makes any separate payment for such use of the boat;*
- *in shared ownership where the boat is wholly owned by her users and used by them or their friends or immediate family.*
- *Rescue or safety craft*

Note: The above lists are not exhaustive.

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[1] Within The Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 1998, "pleasure vessel" means-
(a) any vessel which at the time it is being used is:

(i)
(aa) 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
(bb) 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

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

[2] 'Immediate family' means in relation to an individual, the spouse or civil partner of the individual, and a relative of the individual's spouse or civil partner; and 'relative' means brother, sister, ancestor, or lineal descendent.

2 'Hirer' The person hiring the craft from the hire operator.

3 'Hire Operator'. The person or organisation offering the vessel for hire or for commercially operated or managed shared use where the boat is not wholly owned by her users.

4 **'Houseboat'**. Any vessel not being a power driven vessel or being capable of being readily adapted to become a power driven vessel, which is kept stationary and is, or is capable of being used as either:

(a) A place of habitation, whether by day or night,

(b) A place for receiving or accommodating persons for the purposes of shelter, recreation, entertainment, or refreshment,

(c) Club premises, offices, kitchen, pantry or store

5 'Power driven boats' means any vessel powered by internal (i.e. spark or compression ignition) or external combustion engines (e.g. steam engine) or electric motors, but excludes sailing boats fitted with engines (see definition of 'sailing boat').

6. 'Day-hire craft' means any power driven hire craft not used for over-night stays.

7. 'Licensing authority' A body empowered under the Public Health Acts (Amendment) Act 1907, the Civic Amenities (Scotland) Act or under specific legislation to licence or regulate the operation of craft on defined waters.

8. 'Harbour Authority'. A body with powers and responsibilities for managing harbour areas made under the Harbours, Docks, and Piers Clauses Act 1847, or the Harbours Act 1964, or local legislation.

9. 'Navigation Authority' A body with powers and responsibilities for waterways defined in specific legislation. (Note that for the remainder of this Code, this term is taken to include 'Harbour Authorities')

10. 'Certifying Authority'. A body authorised or appointed by licensing authorities to carry out independent verification of compliance to specified standards. (An example is the Boat Safety Scheme)

11. 'Inland Waters'. Waters listed in MCA notice MSN 1776(M) or its amendments as falling within the categories A to D, or waters not so listed but falling within the definitions given in MSN 1776(M), or controlled waters as defined in the Water Resources Act 1991.

12. 'Open Boat'. A boat not fitted with a watertight deck or rigid cabin top covering at least 70% of the plan area at deck level. Sliding or lifting cabin tops may be included as decked areas. Boats with a rigid canopy over an open well are considered to be open boats unless the sides are enclosed by a rigid weathertight structure.

13. 'Sailing boat'. A boat fitted with sails of a total profile area (m^2) greater than 0.3 L_H^2 (where L_H is in metres)

14. 'Design Class'. A design of boat that has the following:

(a) Common hire operator.

(b) Relies on the same Initial Stability and Freeboard Tests.

(c) The same hull form.

(d) The same arrangement of seating, cockpit, decking and superstructure.

(e) The same location and weight of major masses (e.g. engines, batteries, fuel, and water tanks)

(f) The same limitations on numbers of persons and accessible areas.

(g) The same interior arrangement and outfit.

(h) The same positions of critical down-flooding openings

15. 'Inflatable Boat'. A buoyant hull achieving its intended shape and buoyancy by the medium of inflation of a fabric structure

16. 'Rigid Inflatable Boat'. A buoyant structure comprising a lower hull formed by a rigid structure and achieving part of its intended shape with a buoyancy tube that is of either inflatable or foam-filled type and where the buoyancy of the tube comprises not less than 80% of the total buoyancy of the boat.

Section 1: Introduction

1.1 Background

For many years licensing authorities (including navigation authorities[3]), and the hire boat trade, have been applying standards and regulating hire boats through initiatives such as the Boat Safety Scheme (BSS) and the British Marine Federation (BMF) Hire Boat Handover Audit Service.

The accident to the day-hire boat Breakaway V in July 2003 in which the boat capsized leading to the drowning of one of the occupants, was investigated by the Marine Accident Investigation Branch (MAIB). Their report (reference 3) recommended:

- Development of a national code of safe practice for boats let for hire on inland waterways and co-ordination of the licensing regimes of local authorities and navigation authorities, including the empowerment of the latter to licence where required.
- A review of the international standard on boat stability.
- Encouraging boat builders to obtain independent assurance of compliance with the Recreational Craft Directive

The Maritime and Coastguard Agency (MCA) initiated discussion of the recommendations with stakeholders from across the hire-boating industry. It was decided that it would be appropriate for a non-statutory code to be produced jointly by the MCA, the Association of Inland Navigation Authorities (AINA), and the BMF which would set down best practice and be suitable as a basis for licensing by local or navigation authorities.

The approach adopted in this Code is based on the foreseeable risks of hire boating activity and recognises the responsibilities that navigation authorities, hire operators and hirers have in ensuring adequate levels of safety. The risk control measures are considered to be reasonably practicable given the level of risk, and are consistent with established principles of risk management (see section 1.3).

1.2 Scope

The Hire Boat Code is published in two parts:

Part 1, the present document, deals with power-driven boats. These include:

- Boats providing overnight accommodation and cooking facilities.
- Day-hire.

[3] Note that throughout this Code references to navigation authorities are taken to include harbour authorities in whose area hire boats operate.

- Commercially operated or managed shared use, including time share, where the boat is not wholly owned by her users. Personal water craft are not included[4].

Refer to the definitions given above for further details.

This issue of Part 1 deals specifically with technical and operational issues pending agreement of the arrangements for certification and verification of standards. When these arrangements have been agreed a full issue of this Code will be issued for consultation (section 1.4)

Part 2 will deal with unpowered craft.

1.3 Principles for determining standards.

The National Water Safety Forum have published a set of 'Principles for Water Safety' (reference 5) which are intended to help ensure that safety across the water sector is applied in a way that is consistent, proportionate, and fully recognises the broader societal benefits of water-related activity. They have been applied in the production of this Code.

Account has also been taken of the available data on accidents and incidents in the sector.

1.4 Consultation.

The drafting of this code was carried out by representatives of the BMF, MCA and AINA. Drafts were circulated to members of the BMF working group, and the AINA Safety Issues Group[5]. Following amendment, a revised draft was circulated to all BMF members, AINA members, and the organisations represented on the initial working group set up by the MCA when the project was started, this latter group being considered to represent the full range of stakeholders.

Lastly, a final draft was placed on the BMF, AINA and MCA websites for twelve weeks public consultation prior to finalising the first issue of the technical and operational aspects of the Code. Principal stakeholders were notified by email. The responses to comments raised during consultation were posted on the BMF, AINA and MCA websites.

Any proposals for revisions after first issue will also be subject to appropriate consultation, see section 8.

[4] Refer to 'Managing Personal Watercraft'. Personal Watercraft Partnership 2004

[5] Note the AINA Safety Issues Group also acts as the Inland Waters Advisory Group of the National Water Safety Forum.

Section 2: Responsibilities

The principal parties involved in the hire of a boat all have responsibilities for safety, (reference 4). The hire operator has a duty to the hirer to provide a boat that is safe to operate and live in, and to provide adequate instruction in the safe operation of the boat on the waters where it is intended for use.

2.1 The Hirer

The hirer has responsibilities which include:

a) Nominating a party leader (the 'Skipper', who may not be the same person who made the booking.)

b) The skipper and any other party member nominated to drive or handle the boat must attend the handover briefings (see section 5) and take heed of the advice and instruction given.

c) Be familiar with the safety features and instructions given during the safety briefings.

d) Navigate in accordance with the advice and instructions given (in whatever form including written, verbal, signage) by the hire operator and the body responsible for the waters to be navigated.

e) Study the briefing material provided.

f) Use safety equipment as instructed.

g) Ensure that young people or those with special needs are appropriately supervised (Appendix 1 has more information for special needs and educational parties)

2.2 Hire Operator

The hire operator will:

a) Ensure their boats comply with this Code and are maintained in that condition. (see section 6)

b) Provide handover briefings

c) Not permit boats to depart if they consider that the crew does not have sufficient competence to navigate without putting others at risk, or being able to control their passengers or crew.

Section 3: Risk Assessment

In common with other modern safety management standards, this code is based on an informed assessment of foreseeable risks and an informed judgement of whether the measures introduced to control those risks are proportionate and sufficient.

The technical and operational standards in this code are risk-based, having taken a view of incidents, accidents and foreseeable risks across the whole industry. In practice, the risks found with particular waterways, hire operators and hirers will vary from these industry 'averages'. A process of risk assessment is therefore needed by the organisations with management responsibilities (navigation authorities and hire operators) to assess their local circumstances and decide whether risk controls ***additional*** to those set down in this Code are required.

A simple process of risk assessment is required to ensure that all risks in the local environment are being adequately addressed. Note that it is only necessary to specify standards above those set down in this code where increased local risks are judged to require them. The process should involve the persons with relevant knowledge and experience, and its results must be communicated to those who may be affected by it.

Some typical points to consider are as follows:

3.1 Hire Operators

- Modifications to waterway structures (based on information and instructions provided by the navigation authority)
- Changes to staffing arrangements
- Installation or modification to craft systems or fittings outside the scope of this code
- Weather or water flow conditions (including information and advice provided by the navigation authority)

The above points may require changes or additions to handover briefings and the information provided to hirers. A sample risk assessment format is given in appendix 2, however operators should use a risk assessment method which they feel comfortable with. Further guidance on risk assessment is available from the BMF.

3.2 Navigation/Harbour Authorities

- Temporary engineering works which close or restrict the navigation
- Unusual variations in water levels or flows due to water control or natural causes.
- Unusual boat traffic, either in type or volume.

As with all risk assessments it is important that they be kept under continual review and kept in step with any change that may affect safety (section 6, Change Control), and recorded (section 7, Record Keeping).

Section 4: Technical Standards

This section sets down the standards which apply to the design, construction and maintenance of the hire boats which operate in MCA Category A to D waters. All new hire craft should comply with these standards. Craft already in service as hire craft will be expected to be brought into compliance, where practicable, in accordance with section 4.5.

[Note: In addition hire boats which operate in MCA Category C and D waters may also be required to comply with other relevant technical standards in relation to such as communications equipment, navigation equipment, and life saving equipment. Owners of hire boats should ensure that their vessels conform to all relevant standards for their type and area of operation. Attention is drawn in particular to the Inland Waters Small Passenger Boat Code, published jointly by the MCA and AINA, which although intended for skippered passenger boats, covers many aspects of relevance to hire boats operating on category C and D waters.]

The standards are discussed in four groups, 4.1 to 4.4, below:

4.1 Recreational Craft Directive. New craft within the scope of this Code must comply with the Recreational Craft Directive (RCD). The RCD applies to craft between 2.5m and 24 metres in hull length used for sport or leisure, including hire vessels, and constructed in the UK or anywhere else and first used within the EU on or after 16th June 1998. They may only be placed on the market in the UK or put into service use if they comply with the essential safety requirements set out in the Recreational Craft Regulations. Craft need to display a CE marking to show they satisfy conformity assessment procedures. Further information can be found at (references 5 and 6).

This Code requires hire operators to provide the licensing authority with evidence from a competent third party body of compliance with the principal requirements of the RCD[6]. A model form for providing to the licensing authority is given in appendix 4.

4.2 Licensing Authority Standards.

Requirements for craft already in service relating to fires, explosion, ventilation, and the environment, are taken from the Boat Safety Scheme[7]. The current Boat Safety Scheme requirements for *privately owned* boats were published in 2004. These are presented in three groups: mandatory, advisory, and best practice. Compliance with the mandatory requirements is necessary to obtain a private boat licence. These BSS requirements have been examined for relevance to hire boats taking into account the duty-of-care of the hire operator and likely level of knowledge and experience of the hirer. The results of this review are shown in reference 1. All the requirements which are mandatory for private boats have

[6] The BMF provide a service which independently verifies arrangements for demonstrating compliance with the RCD.

[7] Boat Safety Scheme website: www.boatsafetyscheme.com

been carried over to hire boats. Non-mandatory private boat requirements have been reviewed in table 1, below for application to hire boats.

Hire Boats Code Table 1: Boat Safety Scheme: Advisory Items/Best Practice for Application to Hire Boats

Introduction. This table reviews the 'advisory' and 'best practice' items in the Boat Safety Scheme requirements 2005 (privately owned boats, ref BSS Essential Guide 2nd Edition) , and the 2002 Boat Safety Scheme requirements (currently applicable to hire vessels) and makes recommendations for continued application to hire vessels. Note that Boat Safety Scheme requirements Part 10 for hire boats, are reviewed under miscellaneous equipment, Table 2.

				Recommendations for continued application		
Ref[1]	**Status**	**Topic**	**Item**	**New Build ?**	**Retrospective application to existing boats?**	**Recommendations for maintenance & inspection.**
Fixed Fuel Systems and Engines.						
2.2.1 (2002)	Best Practice	Fuel filling lines.	Inspect hose connections regularly. Use double clamps on petrol filling hoses. Lines as short as possible, regularly supported.	**Y**	**Y**	Monitoring of bilge areas for signs of leakage.
2.2.3	Best Practice	Fuel filling lines.	Hoses marked BS EN ISO 7840, alternatively marked to SAE J 1547 or DIN 4798	**Y**	**Y** (when replaced)	Replace with marked hoses when showing signs of degradation or when carrying out nearby work.
2.7.1 (2002)	Best Practice	Petrol system electrical bonding.	Bonding cables to be 2.5 mm^2 min.	**Y**	**N**	Ensure any replacement cable is to size.
2.10.2 (2002)	Best Practice	Flexible fuel feed/return hoses.	Restrict length of hose to absolute minimum.	**Y**	**Y** (At time of major inspections or refits)	
2.13.2 (2002)	Best Practice	Fuel shut-offs	Means of operating valve or cock from outside engine compartment.	**Y**	**Y** (Where practicable and at times of major inspection/overhaul)	

2.16.2	Best Practice	Steam engines.	Pressure systems subject to regular inspection and covered by insurance policy.	**N** (Inspection item only)	**Y**	No addition to normal operator inspection regime.
Electrical Installations.						
3.1.2 (2002)	Best Practice	Battery location	For sustained charge rates >2kW (i.e.electrically propelled craft) install fan-assisted ventilation.	**Y**	**Y**	
3.2.2	Best Practice	Cables.	Use multi stranded.	**Y**	**N**	Best practice to use multi stranded when replacing cable or installing additional equipment.
3.2.3	Best Practice	Cables.	Visual check for damage during routine maintenance.	**N** (Inspection item only)	**N/A**	Best practice during maintenance and inspection.
3.3.1	Best Practice	Cable runs.	Keep away from potential sources of heat/impact damage. (ISO 10133/13297)	**Y**	Y (where practicable)	Best practice during maintenance and inspection.
3.4.3 (2002)	Advisory	Shore power connections.	Shore power and battery charging leads splash-proof to BS EN 60309.	**Y**	**Y** (where fitted)	Condition of shore power lead to be checked at end of each hire period.
3.5.2	Best Practice	230v supplies.	Fit earth leakage protection (RCD)	**Y**	**Y**(high priority item)	RCD functional check
3.6.1	Best Practice	Battery Isolators.	Fitted in an easy to reach location.	**Y**	N/A Accessing isolators to be covered during handover.	N/A
3.6.5 (2002)	Best Practice	Battery Isolators.	Label isolators e.g. 'starter' and 'services'.	**Y**	**Y**	Check present.
Electrically Propelled Vessels						
4.3.1	Best Practice	Battery charging equipment.	Fit manually operated isolating switch to mains supply.	**Y**	**Y**	
Fire Extinguishing and Escape						
6.1.3 (2002)	Best Practice	Fire extinguishers.	Annual service by competent person.	**N** (Inspection item only)	N/A (Inspection only item)	Annual inspection by hire operator staff (suitably

						trained)
6.2.2	Best Practice	Fire blankets.	Fix permanently.	**Y**	**Y**	
6.3.1 (2002)	Advisory	Emergency Escape.	At least two means of escape recommended. Can include breaking out by hammer of a fixed window or port.	**Y**	**Y**	N/A
6.3.1	Best Practice	Emergency Escape.	Label secondary means of escape where not obvious (e.g. Break-out window using hammer)	**Y** (also handover item)	**Y** (also a handover item)	Check labelling still in place.
6.3.1 (2002)	Best Practice	Emergency Escape.	Soft furnishings, fillings etc to meet fire resistance, smoke release standards. (see also Table 2)	**Y**	**N**	N/A
LPG Installations						
7.1.2 (2002)	Best Practice	Self-contained gas appliances.	Closely supervise use, and safely dispose of used containers.	**N/A**	N/A (Handover item - strongly discouraged)	N/A
7.7.1 (2002)	Best Practice	HP LPG non-return valves.	Check regularly, where fitted.	**N** (Inspection item only)	**N** (inspection item)	Routine inspection item
7.7.2	Best Practice	Regulators.	Replace at least every ten years.	**N** (Maintenance item)	**Y**	Replace as part of routine maintenance.
7.8.1	Best Practice	LPG metal pipework fixings.	Recommended spacings at < 500mm apart.	**Y**	**Y** (where practicable)	To be met as opportunities arise during normal maintenance.
7.9.3	Best Practice	LPG hose at least 75mm from exhaust and flue.	Keep away from all surfaces where temp. may reach 50 deg C.	**Y**	**Y** (where practicable)	Examine as and when opportunity arises.
Cooking, Heating, Lighting Appliances.						
8.4.2	Best Practice	Heat damage to adjacent materials.	Soft furnishings/fabrics/foam material of suitable fire resistant/non-toxic material. Upholstery fabric test to BS EN 1021 Pts 1&2	**Y**	**N**	Routine inspection for signs of heat damage.

8.9.1 (2002)	Advisory	Fixed ventilation to standard.		**Y**	**Y**	Routine inspection.
8.9.2 (2002)	Advisory	Warning notices, closeable ventilators on sea-going vessels.	To help ensure that ventilators are opened when appliances are in use.	**Y**	**Y**	Routine serviceability inspection.
8.10.1 (2002)	Advisory	Appliances flued where required.		**Y**	**Y**	Check flues complete and intact.
8.10.2 (2002)	Advisory	Flues complete and in good condition.		**Y**	**Y**	Check flues complete and intact.
8.10.3 (2002)	Advisory	Flues terminate direct to outside air.		**Y**	**Y**	Check.
8.10.4	Advisory	Flues operating effectively.		**N** (Inspection item only)	**Y**	Routine visual and annual examinations (Appendix 2)
Pollution Reduction						
9.1.2	Best Practice	Bilge pumping.	Arrangements for keeping bilge area oil-tight.	**N** (Maintenance item)		Part of regular inspection
			Engine drip tray (or acceptable equivalent) fitted	**Y**		

Note 1. Numbers refer to BSS 2005. '(2002)' indicates requirement also found in BSS 2002.

4.3 Stability and Freeboard Standards

The Breakaway V accident showed that in certain circumstances of load and distribution the ISO stability standard (BSS EN ISO 12217) mandated under the RCD could 'pass' conditions where stability margins were inadequate. With the support of MCA and AINA, the BMF have commissioned work to investigate the standard and recommend changes to address these issues. The completed work (appendix 3) is the basis for determining acceptable stability and freeboard standards under this Code.

In due course a revised ISO standard will be issued which could also be used to demonstrate adequate stability for the craft within its scope.

There are two levels of stability and freeboard testing, discussed in section 4.3.1.

A sign stating the maximum number of persons to be carried must be fitted in a position that is clearly visible from the helm position.

4.3.1. Stability Testing.

(a) Initial Stability and Freeboard Test. These are applied to a representative sample of each design class except inflatable and rigid inflatable boats when:

- This Code comes into effect,
- New or used boats are taken into hire service
- Reference data or certification from a previous Initial Stability Test is not available.

Both stability and freeboard tests shall be applied to an individual boat that has failed a check stability test.

Two types of stability test are available:

(i) The General Initial Stability Test explores the limits of a craft's stability and must only be undertaken by persons competent to do so and working to a safe system of work. See 3.2 of Appendix 3 and consult the BMF Technical Department for more information[8].

(ii) The Simplified Initial Stability Test (see 3.3 of Appendix 3) is available for boats meeting certain parameters operating on MCA Category A, B or C waters and which are:

– 2.08m beam cruising narrowboats over 10m length, and

– Unballasted decked power-driven boats over 7m length

The latter test is simplified, and may be conducted by suitably competent hire operator staff.

(b) Check Stability Test. This test will be carried out when any of the following apply:

[8] BMF Technical Department reference www.britishmarine.co.uk

- After any change of engine type, internal or deckhouse arrangement, or the amount of ballast.

- When any permanent weights of more than 3kg/metre of hull length are added or taken off, or any weight is added high up, e.g. adding or altering a mast.

Check Stability Tests can be carried out by suitably competent hire operator staff. Further details of the test and competence required can be found in section 3.4 of Appendix 3, and in reference 7. Depending on the results of stability testing and the layout of the boat, Appendix 3 provides information on preventing or discouraging access to areas of a boat where the stability tests indicate a need to do so.

4.3.2 Decked Powered Boats

The maximum number of persons on the boat, excluding the number permitted on cabin top or side-deck shall not exceed twice the total plan area (in m^2) of cockpits that are either open to the air or or equipped with portable means of shelter (sliding tops, canvas covers, etc)

Minimum freeboard shall comply with sections 4.1 and 4.2. of Appendix 3.

Pontoon boats shall not be operated outside of MCA Category A or B waters.

4.3.3. Open Powered Boats

The maximum number of persons on the boat, excluding the number permitted on cabin top or side-deck shall not exceed twice the total plan area (in m^2) of cockpits that are either open to the air or equipped with portable means of shelter (sliding tops, canvas covers, etc).

Minimum freeboard shall comply with sections 4.1 and either 4.3 or 4.4 of Appendix 3 according to whether flotation is fitted. Flotation is a means of providing buoyancy to a swamped boat, e.g air tanks or buoyancy bags. Freeboard requirements are higher where flotation is not fitted.

The following open powered boats must comply with the flotation requirements of section 6.4 and Annex B of ISO 12217-3 except the One Person test is not required for boats where the hull length is greater than 6m:

- Less than 4m L_H in Category A waters
- Less than 4.5m L_H in Category B waters
- Less than 5m L_H in Category C waters
- All those in Category D waters

Boats under 4m length may not be operated outside of MCA Category A or B waters.

Boats required to be marked with either of the labels shown in figures 3 or 4 of Appendix 3, section 3.2, shall not be permitted to operate in Category C or D waters.

(Note: Hull length L_H is defined in ISO 8666 as the length from the forward side of the stem at gunwale level to the aftermost point of the watertight hull, measured parallel to the loaded waterline.)

4.3.4 Inflatable and Rigid Inflatable Boats

Inflatable and rigid inflatable boats shall comply with the following clauses of the relevant part of the latest edition of ISO 6185 as applicable: maximum number of persons, maximum motor power, static stability, maximum load capacity, intact buoyancy, residual buoyancy, downflooding height, compartmentation, but incorporating the following changes:

- Where assessment is made in accordance with ISO 6185:2001, the test mass used per person in the static stability test shall be 100kg instead of 75kg.
- Where assessment is made is made in accordance with ISO 6185:2001, the maximum load capacity requirement of clause 6.4.1 shall also be applied to Type VIII boats.
- Until ISO 6185-4 (rigid inflatable boats over 8m length) is published, assessment of the clauses listed above shall be in accordance with the latest published edition of ISO/DIS or ISO/FDIS text[9].

4.3.5 Handover Procedures – Stability Aspects

The following stability-related aspects are included in handover procedures, (references 8 and 9):

a) Open powered boats under 8m length (approx.). Not more than one person should be outside the cockpit at any time. In most circumstances all persons should remain in the cockpit at all times.

b) Open boats of L_H less than 6m displaying the labels given in figures 4 or 5 of Appendix 3: Take care to keep the boat upright at all times. Excessive heel may swamp the boat or cause it to capsize.

c) Narrowboats. Where side-decks are provided, are of width not less than 75 mm and have a non-slip finish they may be used for occasional access to facilitate mooring, lock operation etc. They should not be regarded as providing a safe route along the boat.

No more than two (this number may vary according to stability test results) persons to be on cabin roof at any one time. (Note: This requirement is in respect of stability issues only. It does not override other issues restricting access such as limited airdraft)

Because some gates leak water into the lock, there is a risk of swamping if the boat is too close to the upstream lock gate. Boats should keep back from leaking gates.

d) General. Restrict numbers of persons using the side decks and cabin roof in accordance with stability testing results (section 4.3).

[9] ISO 6185/DIS-4.2 at the time of publishing this Code

4.4 Miscellaneous equipment

An examination of available accident and incident data has been used to determine the need for equipment and features additional to those referred to at 4.1 and 4.2 above. These are shown in table 2, below. This includes items applicable to hire boats covered in Part 10 of the 2002 BSS standards.

Hire Boats Code Table 2: Miscellaneous Standards.

Control Measure	Boat Type (note 4)	Comments	New build - Applicable Waters (note 3)				Retro-spective? (note 2)	Recommendations for maintenance and inspection by hire operator.	Certifying Authority inspection item?
			A	B	C	D			
Lifebuoys									
One (minimum)for all vessels to be kept as close as practicable to helm position.	Day/24+	600mm diameter to MSN 1676 construction requirements. Alternatives to lifebuoys include (with appropriate instruction) horseshoe buoys, rescue quoit and line, rescue can and line.	Y (note 1)	Y			Y	Routine condition inspection (Appendix 1)	Y
One buoy (not in addition to the above),fitted with buoyant line	Day/24+				Y	Y	Y		Y
Personal Flotation Devices									
One to be carried for each child and non-swimmer carried. 'Offered' to all others for Cat A and B waters, and carried onboard for Cat C and D waters.	24+	Minimum standard BS EN ISO 12402-4 . Permanent flotation (non-inflatable) type. Sizes appropriate to occupants, e.g. children and large adults. Inflating jackets (manual or automatic) are an alternative.						Routine condition inspection (Appendix 1)	Y
		100 N Buoyancy	Y	Y			Y		
		150 N Buoyancy			Y	Y	Y		
'Offered' for Cat A waters	Day	100 N Buoyancy (standard as above)	Y	Y			Y		Y
		150 N Buoyancy (standard as above)			Y	n/a	Y		
Handholds									
Handholds are any part of the boat that may be gripped by hand to reduce the risk of falling overboard. To be available around superstructure	Day/24+	BS EN ISO 15085 gives further guidance.	Y	Y	Y	Y	Y	Routine condition inspection (Appendix 1)	Y

Slip -resistant decks									
Weather decks and exterior tread surfaces, gang plank and brows to be provided with effective slip-resistant surfaces/coatings.	Day/24+		Y	Y	Y	Y	Y	Routine condition inspection (Appendix 1)	Y
Hull integrity									
Hull structure proven (on this or similar vessel) by recent history of safe operation in similar or more onerous operating category, and by monitoring of soundness and integrity.			Y	Y	Y	Y	Y	Hire operators should satisfy themselves of continued soundness and integrity, including appropriate out-of-water examination at least every five years (more frequently for wooden hulls).	Y
Forward bulkhead to be weathertight at bow to prevent ready ingress of water.		Includes provision of 75mm (Nominal) door cill height at bows to reduce influx of water from lock gates (leaks or gate paddles)	Y	Y	Y	Y	N		N
Sea cocks fitted		For openings below deepest laden waterIIne and permanently connected to ducts or pipes watertight to above 250mm:						Routine condition inspection (Appendix 1	Y
		To BS EN ISO 9093			Y	Y	Y		
		To a suitable standard	Y	Y		Y	Y		
		To a suitable standard for openings above deepest laden waterline and connected to ducts or pipes watertight to less than 250mm above. *[Exclude exhausts and engine compartment ventilation openings - picked up by stability tests?]*	Y	Y	Y	Y	Y		
Weed hatch cills , where fitted, to be minimum of 100mm above deepest laden waterline and fitted with watertight cover.			Y	Y	Y	Y	N		

Bilge Pumping									
Manual pump, or electric or engine-driven pump with manual starting facility.	Day/24+		Y	Y	Y	Y	Y	Routine condition inspection (Appendix 1)	Y
Bailers	Open boats		Y	Y	Y				
Spread of Fire									
Fire resistant noise and thermal insulation materials.	Day/24+. Decked.	*[Standard to be defined - see also Table 1]*	Y	Y	Y	Y	N		Y
Means of escape to be marked where not obvious.	Day/24+. Decked.	(See also BSS standards review - Table 1)	Y	Y	Y	Y	Y		Y
Soft furnishings/fabrics/foam material of suitable fire resistant/non-toxic material. Upholstery fabric test to Standards of BS EN 1021 Parts 1 and 2.	Day/24+	BSS 2002 recommendation. See also Table 1.	Y	Y	Y	Y			Y
Cleats and strong points									
To be provided appropriate to the vessel and its area of operation. Minimum of one at bow and stern.	Day/24+	To provide means of mooring or being towed. For vessels likely to use locks or otherwise securing against high walls, cleats must securely hold ropes at high angles. BS EN ISO 15084 provides general guidance on strong points.	Y	Y	Y	Y	Y	Condition monitoring.	Y
									Y
									Y
Mooring Lines									
Two lines minimum. Number and length to be selected based on vessel type and knowledge of operating area and conditions.	All types	Lines to be in good condition and free of knots, stranding etc. Lines, including eyes/splices to be of material, size and strength appropriate for size and weight of vessel. Account must be taken of navigation authority requirements.	Y	Y	Y	Y	Y	Pre hire checks. General condition monitoring.	Y

Fendering									
Fendering and rubbing strakes, where fitted, are soundly fastened.		Bow/stern fenders designed as far as practical not to cause hang-ups in locks.	Y	Y	Y	Y	Y	General condition monitoring.	Y
Anchors and Cables									
Anchor, mudweights and cable/warp to suit boat size/weight		Application includes canalised rivers with weirs. Need and type dependent on risk assessment of local conditions. Refer to BS EN ISO 15084 for general guidance on strong points and warps.		Y	Y	Y	Y		Y
Smoke Detectors									
To be specified when standard is developed and products available.	Day/24+	Boats with enclosed cabins only. Day boats only where cooking/heating appliance is not visible from the steerer's position.	Y	Y	Y	Y	Y	Periodic functional checks.	Y

Note 1. Small day-hire boats on category A waters may be exempted due to space constraints.

Note 2. Includes equipment which may be fitted by the hire operator.

Note 3. Day boats are taken as limited to Cats A to C only.

Note 4. '24+' denotes craft used for overnight stays.

4.5 Application to Existing Craft.

For existing craft which may not meet the standards described above, tables 1 and 2 show those items where deferred compliance, where practicable, is acceptable.

Section:5 Operational Standards

This section is primarily concerned with the way in which boat hirers, who may have little or no previous experience, are provided with sufficient information and instruction to enable them to safely undertake the trip. It follows the stages of a trip through from booking, to departure from the hire base, to the conclusion of the trip.

(Note: This section is based on the national hire boat and day-boat handover schemes run by the British Marine Federation, references 8 and 9)

5.1 Pre trip information

Advanced booking gives an opportunity for the hire operator to provide the hirer with information both on navigating boats in general, such as using locks, rules of the road, mooring etc, and on the area in which they will be boating. General information is also available from some navigation authorities and industry associations[10]. Navigation Authorities will often produce cruising notes.

5.2 Handover procedures

Whether the boat is a large well-equipped cruiser designed to provide living accommodation for several weeks, or a simple day-boat, it is essential that before the hire operator gives control of the boat to the hirer a systematic and documented handover procedure, appropriate to the type of boat and its area of operation, is followed. This will cover topics which include:

a) Equipment.
   - Gas and electric appliances, and sanitary facilities.

b) Using the boat
   - Steering, stopping and mooring
   - Awareness of access limitations to ensure stability (see section 3.1 of Appendix 3 for detail)
   - Use of locks, swing bridges etc
   - Awareness of navigation hazards (e.g. weirs, tidal flows and/or river flows, commercial traffic, shallow water etc)
   - Speed limits
   - Restrictions to navigation notified by navigation or harbour authorities, or the MCA.

c) Safety Equipment.
   - Life jackets

[10] The Boaters Handbook. Published by British Waterways and the Environment Agency. Also available in CD ROM.

RYA Publication, Inland Waterways Handbook.

- Lifebuoys, throwlines etc

d) Briefing material

The handover should be supported by briefing material (a 'Boat Manual') left in the boat which provides full information on:

- Personal safety
- Safe use of appliances fitted in the vessel – cookers, stoves, heaters etc
- Safety on the move
- Safety equipment and its use
- Navigation rules, including speed limits, speed, giving way, etc.
- Mooring (where and how)
- Dealing with fouled propellers, going aground, etc
- Navigation features and hazards such as locks, weirs, currents, tides etc
- Detailed reference information on how the boat works
- Contact information including for emergencies

e) Communications

- Using the contact material in the boat manual.

f) Dealing with emergencies

- Man overboard
- Breakdown
- Use of fire extinguishers/blankets
- Emergency contact details
- Recording and reporting

It is essential that the briefing is done by a competent and experienced member of the hire operator's staff who can deal confidently with any questions the hiring party may have.

5.3 Competence Assessment

During or at the completion of the handover briefing, the hire operator must decide whether the hirer and his party are sufficiently competent to be allowed to take the boat out. Reasons for not doing so would include:

- Inability of the skipper(s) to demonstrate adequate control (even after repeated instruction)
- Perceived impairment through drink or drugs
- Inadequate resources available to the party to control children safely or supervise persons with special needs.

If the decision is made not to permit the boat to go out, this should be recorded in the handover documentation.

Throughout the handover process, the person giving the instruction should take account of any qualifications (for example, RYA Inland Helmsman) or previous experience professed by the skipper(s), however this should only be recognised as an opportunity to accelerate the briefing, not dispense with it.

5.4 During and after the Hire Period

At the conclusion of the hire period the hirer should have the opportunity, where practicable, to report back to the hire operator on any problems or incidents that occurred. These would include:

- Accidents
- Breakdowns
- Vandalism or anti-social behaviour

Hire operators must be aware of the statutory duty to report certain types of accident involving the use of hire craft to the Marine Accident Investigation Branch[11]. In the interests of building a better understanding of boating accidents, their frequency and causes, hire operators are encouraged to pass on details through their navigation authority, or BMF, for inclusion in the IRIS database[12].

5.5 Documentation

The handover process is an essential element of delivering a safe boat trip to the hirer. It is important that an audit trail of its delivery is maintained. This will include:

- Booking terms and conditions
- Booking confirmation
- Customer log sheet. The record of when the hirer and his party arrived and departed, party member names, delivery of handover.
- Boat acceptance certificate. A record of the handover and the hirers' and skippers' written acceptance of it. *(Note: If a signed certificate is to carry any weight in any subsequent investigation or claim it is essential that it clearly readable and understandable in the relatively short period available during the handover process!)*
- Accident/incident reports and records of any other customer feedback.

[11] Statutory Instrument no SI 881/2005. Merchant Shipping (Accident Reporting and Investigation)Regulations 2005

[12] IRIS is AINA's incident and accident recording system which is used to provide the National Water Safety Forum with industry wide data.

5.6 Audit

In view of the importance of the handover process, hire operators are strongly recommended to periodically have their handover arrangements independently audited[13]. Licensing authorities can reserve to right as part of licence conditions to carry out sample audits; having an independent audit available is likely to satisfy such a requirement.

[13] The British Marine Federation offer an external audit service. www.britishmarine.co.uk Details of the service are also given at references 12, 13 and 14.

Section 6: Change Control

Changes to boats and the areas in which they operate inevitably occur and they need to be appropriately considered if the overall operation is stay in compliance with this Code. Hire operators and navigation authorities need to have processes in place which will ensure that the risks from any actual or proposed change are assessed and responded to appropriately.

6.1 Boats

Hire operators need to carefully consider whether any changes under consideration would lead to the boat falling out of compliance with the standards in this code. In particular they need to pay attention to those changes with the greatest potential for increasing risk. These include:

- **Stability.** Additions to passenger numbers, structural alterations which may add weight or affect centre of gravity, fitting of different engines. These may require additional stability testing, see section 4.3.
- **Fire or explosion.** Installation of new gas appliances, re-routing of pipework, fuel system changes, electrical system changes.
- **Ventilation.** Changes to ventilation arrangements, appliance flues or anything which may impair maintenance of effective fixed ventilation to the required standard.

Any changes being considered must be assessed to ensure they will not increase risk or take the boat out of compliance with this Code. Changes must be carried by competent fitters in accordance with any statutory requirements such as Gas Safety (Installation and Use) and fully tested. The assessment should be simply documented to show that the change has been adequately considered. This can be done in a similar way to the risk assessment process - a simple form for this purpose is given in appendix 2.

6.2 Operational Changes.

Temporary or permanent changes to the area in which the hire boat operates could cause addition hazards which may require additional briefing of hirers, or restrictions to the area of operation. These could include:

- Complete or partial closures to navigable channels for maintenance purposes, or special events.
- Temporary obstructions restricting available channel or airdraft.
- Missing or unserviceable navigation signs or aids e.g. channel markers.
- Severe weather conditions causing flooding or high water flows.

Hire operators should ensure that they pay due heed to the available information sources such as navigation authority notices and bulletins, notices to mariners, extreme weather and flood alerts etc. Navigation and harbour authorities need to ensure they take reasonable measures to notify boat operators of hazardous conditions of which they otherwise might not be aware.

Risk assessments (section 3) need to be brought up to date accordingly, and the change recorded (appendix 2).

Section 7: Record Keeping

This section recommends the information that should be retained by hire operators and licensing/Navigation authorities. This will assist them if required to produce evidence of compliance with this Code. The following is recommended for document retention:

- *Operational records:* Minimum of two years plus a further two years where any incident has occurred.
- *Boat records:* Minimum of two years plus a further two years where any incident has occurred.
- *Legal, Commercial or Safety Management records:* 6 years.

7.1 Hire Operator

(a) Safety Management Arrangements

- Who has responsibility for safety, including handovers and the condition of boats (This could be covered by the safety policy statement produced under the Health and Safety at Work act.)

(b) Boat

- Certificates and results of Initial and Check stability tests (retain for life of boat)
- GSIUR certificates
- Certifying authority certificates, e.g.BSS.
- Inspection records
- Major maintenance and inspection records
- Change/modification records

(c) Operations

- Booking terms and conditions, and confirmations.
- Who received and delivered handover briefings
- Incidents and accidents reported by operators, hirers, and third parties
- Boat manuals, or briefing notes.
- Customers log sheets (when the hirer and his party arrived on board and were briefed, names of party,etc)
- Boat Acceptance Certificates
- Accident/Incident Reports
- Handover procedures

7.2 Licensing/Navigation/Harbour Authorities

- Safety Policies
- Navigation risk assessments
- Communications with hire operators
- Accident/incident records
- Licensing records

Section 8: Review

The BMF, AINA, and the MCA will form a small review team who will:

- Monitor experience with the Code, including accident/incident data,
- Propose changes,
- Consult stakeholders on proposed changes,
- Deal with queries on interpretation of the Code,
- Issue and communicate future revisions and issues,

Formal reviews will be carried out annually and reported on the host organisations' websites. Every effort will be made to avoid a substantive re-issue within the first three years of its implementation.

Appendix 1 Recommendations and Best Practice for Inspection and Maintenance of Craft by Hire Operators.

A1.1 Introduction

This section contains recommendations for what are considered to be reasonable minimum standards of inspection and maintenance to ensure that boats are dispatched in a safe, serviceable and fully equipped condition, and remain safe throughout their operating lives. Note that these recommendations apply only to safety-related aspects.

This appendix groups maintenance and inspection checks into three types:

- **Turn-round.** The minimum required at turn-round to ensure that the craft is dispatched in a safe and serviceable condition with all its safety equipment.
- **Periodic**. Items which should be checked regularly during the season to ensure safety. Operators may chose to combine these with the *turn-round* checks, or for boats used more intensively, typically day-boats, at time or number-of-trips intervals.
- **Major Servicing** . Carried out at least annually, this includes servicing of major items of equipment and machinery, inspections for deterioration, and replacement of parts as required for a further period of safe operation.

The following sections give an illustration of items covered under the three types of checks. It is not an exhaustive list. Hire operators are recommended to produce their own maintenance arrangements according to their type of operations and environment.

A1.2 Turn-round

Items to be covered include:

- Lifebuoys
- Fire extinguishers/blankets
- Fuel
- Drip trays. Clean and serviceable.
- Engine oil levels
- Ropes, fenders and anchors

A1.3 Periodic

Items to be covered include:

Functional checks:

- Bilge pumping systems
- Cables and controls
- Switches and instruments
- Battery master switches
- Shore power RCD

Condition checks:

- Bilge water
- Alternator drive belt
- Coolant level
- Hydraulic system levels
- Ventilation clear (visual check)
- Safety signs (e.g. limited access areas)
- Anti-slip surfaces

A1.3 Major Servicing

Items to be covered include:

- *Engine/gearbox.* Routine maintenance (e.g. oil/filter changes, valve clearances, drive belt condition, cabling and terminals, starters, leak checking, mountings condition and alignment etc), taking account of manufacturers recommendations.
- *Exhaust.* Serviceability and condition check, including lagging.
- *Hull integrity.* Inspections for deterioration, sea cocks serviceability
- *Cooling system.* (flush, condition of hoses, clips, leak test) Includes calorifiers.
- *Fuel system.* Condition check of pipes, connections, and tanks. Leak-free.
- *Cables and Controls.* Check for damage and wear. Lubricate. Functional checks
- *Sterngear.* Inspect and service.
- *Fire extinguishers.* Annual inspection.
- *Gas systems.* Annual GSIUR inspection. All joints, flexible pipes and regulators, burners flame failure devices etc
- *Battery condition.* Also condition of cables and terminals.
- *Electrics.* Condition of visible cables and terminals.

A1.4 Documentation

- It is recommended that hire operators produce their own maintenance schedules covering as a minimum the items listed above. It is also recommended thatA record of the completion of major servicing is retained signed off by the hire operator. (The signature of the hire operator's representative on handover documentation (section 5.5 – Boat Acceptance Certificate) is confirming to the hirer that turn-round and periodic checks have been carried out.)

Appendix 2 Example of Risk Assessment and Control Form

Hire Boat Company Name

Prepared by: Dave Brown Date: 18th June 2008

Authorised by: Harry Smith Date: 25th June 2008 Next Review Date: 31st March 2009

Boats		
Change[1]	**Possible Hazard[2]**	**Additional Risk Control Measures[3]**
Fitting cabin to open boat.	*Reduced stability.*	*Carry out new Initial Stability Test.*
New engine/transmission installation.	*Different weights/locations could have adverse effect on trim and stability.*	*Carry out check stability test. Substantial changes may need a new Initial Stability Test.*
	Incorrect or incomplete installation.	*Commission surveyor to oversee works and commissioning*
Additions or modifications to gas systems.	*Gas leaks. Potential for fire/explosion.*	*Works carried out and inspected by competent person.*

Operating Environment		
Change[1]	**Possible Hazard[2]**	**Additional Risk Control Measures[3]**
Restriction to navigation notified by navigation authority - restricted bridge hole due to repair work.	*Collision with temporary works.*	*Include in handover briefings for duration of works.*
Strong streams due to water control.	*Abnormally strong flows, flow directions and level changes.*	*Include in handover briefings for as long as necessary. Possibly advise alternatives routes.*
Poor weather leading to abnormal wave heights.	*Stability question if heights are outside assumptions made in stability assessment.*	*Check available margins on wave height and restrict operations if necessary.*
Operation of boat outside original area.	*Risks arising from non-compliance with the Code.*	*Assess against Code provisions. Identify non-compliance and identify measures required.*

Crew/Passengers		
Change[1]	**Possible Hazard[2]**	**Additional Risk Control Measures[3]**
Exceptionally heavy party.	*Stability margins reduced.*	*Do not permit total crew weight to exceed 85kg times number of persons. Re-emphasise handover briefing stability aspects.*

Notes

1 'Change' includes anything which could introduce a hazard outside the scope of the Code, or require substantial alteration to measures already introduced.

2 What could happen as a result of the change.

3 The measures judged necessary to deal with the hazard.

STABILITY, BUOYANCY & FREEBOARD REQUIREMENTS

PART 1 – POWERED CRAFT

1 GENERAL

1.1 Scope

These requirements apply to power-driven boats, including:

- boats providing overnight accommodation and cooking facilities
- day-hire boats
- time-share boats (commercially run)

Personal watercraft, human propelled boats and sailing boats fitted with engines are not included.

1.2 Definitions

The following definitions apply:

Child: person weighing less than 37.5kg (approximately 1.2m height).

Cockpit: Any well or area of deck (other than coachroof or cabin top) normally used by the crew when the boat is underway.

Day-hire boat: a boat not fitted with overnight accommodation (bunks and cooking facilities).

Decked Boats: boats fitted with a watertight deck or rigid cabin top covering at least 70% of the plan area at deck level. Sliding or lifting rigid cabin tops may be included in the area described as “decked”. Boats with a rigid canopy over an open well are considered to be Open Boats unless the sides are enclosed by rigid structure.

Design Class: a design of boat that has all of the following:

(a) Common hire operator.

(b) Relies on the same Initial Stability Test and Initial Freeboard Test.

(c) The same hull form.

(d) The same arrangement of seating, cockpit, decking and superstructure.

(e) The same location and weight of major masses (e.g. ballast, engines, batteries, fuel and water tanks).

(f) The same limitations on numbers of persons and accessible areas.

(g) The same interior arrangement and outfit.

(h) The same positions of critical downflooding openings.

Different sub-classes (or models) may be created where changes are made to d) e) or f) above. The change will require a Check Stability Test to be carried out. If this

shows that a fresh Initial Stability Test is required then the boat will be regarded as a new design class.

Flotation: means of providing buoyancy to a swamped boat, eg: air tanks, buoyancy bags.

Freeboard: the least height (when the boat is upright) from the loaded waterline to any opening that may admit water into the interior or non-self-draining part of the boat (also known as downflooding height).

Freeboard margin: the minimum freeboard measured when heeled during the Initial Stability Test.

Hire operator: Person or organisation offering boats for hire (includes time-share operators).

Hirer: Person hiring the boat from the hire operator.

Inflatable boat: buoyant hull achieving its intended shape and buoyancy by the medium of inflation of a fabric structure

Length of Hull (L_H): length of boat from the forward side of the stem at gunwale level to the aftermost point of the watertight hull, measured parallel to the loaded waterline.

Narrowboat: a boat with a maximum beam of 2.08m (6 feet 10 inches) and designed for the narrow waterways and canals.

Open Boats: all boats that are not Decked Boats.

Pontoon Boat: day-hire boat comprising a platform mounted on two cylindrical sealed hulls.

Powered Boats: boats powered by internal (ie: spark or compression ignition) or external combustion engines (eg: steam engine) or electric motors and not fitted with sails.

Rigid Inflatable Boat: buoyant structure comprising a lower hull formed by a rigid structure and achieving part of its intended shape with a buoyancy tube that is of either inflatable or foam-filled type and where the buoyancy of the tube comprises not less than 80% of the total buoyancy of the boat.

Seating Place: a place where people can be seated, minimum width 500mm, with legroom appropriate to its height. It may be a dedicated seat or bench, a bunk, sun pad or (in Canoes, Dinghies or Punts) the bottom boards.

Significant wave height: average height of the highest one third of the waves, unless otherwise indicated.

NB: Where any of the foregoing definitions differ from those in the body of this Code, the definitions given above shall be utilised when applying these requirements

2. GENERAL STABILITY & FREEBOARD REQUIREMENTS

2.1 General

(a) Except in relation to freeboard (also known as downflooding height), references to:

- Design Category C in ISO 12217 shall be taken as applicable to MCA Categories C and D.
- Design Category D in ISO 12217 shall be taken as applicable to MCA Categories A and B.

(b) Even where ISO 12217 is being utilised, the freeboard requirements of section 4 below shall apply to boats assessed using this Code instead of those in ISO 12217.

(c) Where reference is made to an ISO standard, the relevant definitions and requirements in the document being used shall apply unless they differ from those in this Code, in which case the latter shall apply.

(d) The maximum number of persons shall not exceed the number of available Seating Places.

(e) Where limits are placed on the number of persons based on plan area, figures calculated shall be rounded up if the first decimal place is 5 or more, otherwise rounded down.

(f) Day-hire boats unable to satisfy all the requirements for Category B, but meeting the requirements for Category A, may be operated in Category B waters provided that they do so in conditions not exceeding 20 knots of wind and wave heights of 0.1m significant. When this option is exercised, the hire operator shall maintain daily records of the wind and wave conditions during periods when boats are being hired out.

(g) Where boats are hired out to groups of young people or groups of mixed ages, the total number of persons permitted by this Code may be exceeded provided that the total weight of persons using the boat does not exceed the number permitted by this Code multiplied by 75kg.

2.2 Decked Powered Boats

The stability of decked powered boats shall be assessed using the stability test procedure given in section 3 below.

The maximum number of persons on the boat, excluding the number permitted on cabin top or side-deck, shall not exceed twice the total plan area (in m^2) of cockpits that are either open to the air or equipped with portable means of shelter (sliding tops, canvas covers, etc).

Minimum freeboard shall comply with sections 4.1 and 4.2 below.

Pontoon boats may only be given MCA Category A or B.

2.3 Open Powered Boats

The stability of open powered boats shall be assessed using the stability test procedures given in section 3. During the tests, persons may be restricted to cockpits or wells.

The maximum number of persons on the boat shall not exceed twice the total plan area (in m^2) of cockpits that are either open to the air or equipped with portable means of shelter (sliding tops, canvas covers, etc).

Minimum freeboard shall comply with sections 4.1 and either 4.3 or 4.4 below according to whether or not flotation is fitted. Flotation is a means of providing buoyancy to a swamped boat, e.g. air tanks or buoyancy bags. Freeboard requirement are higher where flotation is not fitted.

The following open powered boats must comply with the flotation requirements of 6.4 and Annex B of ISO 12217-3, except the One Person Test is not required for boats where L_H is greater than 6m:

- less than 4m L_H in Category A waters
- less than 4.5m L_H in Category B waters
- less than 5m L_H in Category C waters
- all those in Category D waters

Boats under 4m length may not be operated outside of MCA Category A or B waters.

Boats required to be marked with either of the labels shown in Figures 3 or 4 (section 3.2) shall not be operated in Category C or D or coastal waters unless a support boat and crew are immediately available.

2.4 Inflatable and Rigid Inflatable Boats

Inflatable and rigid inflatable boats shall comply with the following clauses of the relevant part of the latest edition of ISO 6185 as applicable: maximum number of persons, maximum motor power, static stability, maximum load capacity, intact buoyancy, residual buoyancy, downflooding height, compartmentation, but incorporating the following changes:

- Where assessment is made in accordance with ISO 6185:2001, the test mass used per person in the static stability test shall be 100kg instead of 75kg.
- Where assessment is made is made in accordance with ISO 6185:2001, the maximum load capacity requirement of clause 6.4.1 shall also be applied to Type VIII boats.

Until ISO 6185-4 (rigid inflatable boats over 8m length) is published, assessment of the clauses listed above shall be in accordance with the latest published edition of ISO/DIS or ISO/FDIS text[14].

2.5 Plan of Stability and Freeboard Testing

Power-driven boats shall be subjected to the following tests:

2.5.1 Initial Stability Test and Initial Freeboard Test.

These tests shall be applied to a representative sample boat of each Design Class when:

[14] ISO 6185/DIS-4.2 at the time of publishing this Code

- this code comes into effect,
- new or used boats are taken into hire service
- reference data or certification from a previous Initial Stability Test is not available.

Both tests shall be applied to an individual boat that has failed a Check Stability Test.

The General Initial Stability Test procedure is given in 3.2 of this appendix. As an alternative, many boats are eligible for the Simplified Initial Stability Test described in 3.3.

The General Initial Stability Test explores the limits of a craft's stability and must only be undertaken by persons competent to do so and working to a safe system of work. Consult the BMF Technical Department for more information[15]. Further details can be found in Section 3 of these requirements.

Further details of the Freeboard Test can be found in Section 4.1 of these requirements.

2.5.2 Check Stability Test.

This test shall be carried out on any boat when any of the following apply:

- after any change of engine type, internal or deckhouse arrangement, or the amount of ballast.
- when any permanent weights of more than 3kg/metre of hull length are added or taken off, or any weight is added high up, e.g. adding or altering a mast.

If the Check Stability Test does not adequately repeat the measurements made during the Initial Stability Test, the latter test is to be conducted on the boat in question.

Check Stability Tests can be carried out by suitably competent hire operator staff. Further details of the test can be found in Section 3.3 of these requirements.

[15] BMF Technical Department reference www.britishmarine.co.uk

3 STABILITY TESTING OF POWERED BOATS

3.1 General

(a) The Offset Load Test used in ISO 12217 Parts 1 and 3 as amended shall be accepted as equivalent, provided that data to enable Check Stability Tests to be undertaken has been recorded.

(b) Every boat of a class used by a given hire operator shall have the bow and stern freeboard measured prior to every new season. When this check is made the boat shall be in the loading condition described in 3.2.1(b).

(c) The Crew Area comprises the areas of the boat in which persons may be safely located when the boat is in use, and comprises all areas defined by the Hire Operator for people to stand, walk, sit or lie during normal operation of the boat including internal decks. On some boats it may be limited to the cockpit, but it must always include all of the primary cockpit. The Crew Area of each class of boat is to be identified in the Hire Operator's documentation and on a diagram placed at the main control position – see Figure 1.

(d) If the Hire Operator chooses to assess the stability by excluding some areas from the Crew Area or limiting the number of people on any given area, such areas are to be listed in the Hire Operator's documentation and a diagram identifying such areas and their access limitations shall be placed at the main control position – see Fig 1. In addition where points of access are not visible from the control position, they shall be physically marked with "do not access" or "limited access" signs as illustrated in Figures 2 and 3.

(e) When such safety signs are fitted, they shall be placed where they are clearly visible, and shall be made of rigid plate or flexible labels affixed to the craft in such a way that they can only be removed by the use of tools. The size of the symbols and text on the labels shall comply with Table 4 below. Text shall be in black on a white background, using a plain sans serif typeface such as Arial Narrow.

Table 4 - Size of Safety Signs and Supplementary Text

Expected viewing distance (m)	**≤ 0,6**	**> 0,6 ≤ 1,2**	**> 1,2 ≤ 1,8**	**>1,8 ≤ 2,4**	**> 2,4**
Minimum height of sign in figures (mm)	20,0	20,0	30,0	40,0	50,0
Minimum height of capital letters (mm)	2,4	4,8	7,2	9,6	12,0
Minimum height of lower case letters (mm)[a]	1,7	3,4	5,1	6,9	8,6
[a] eg: height of letter "e"					

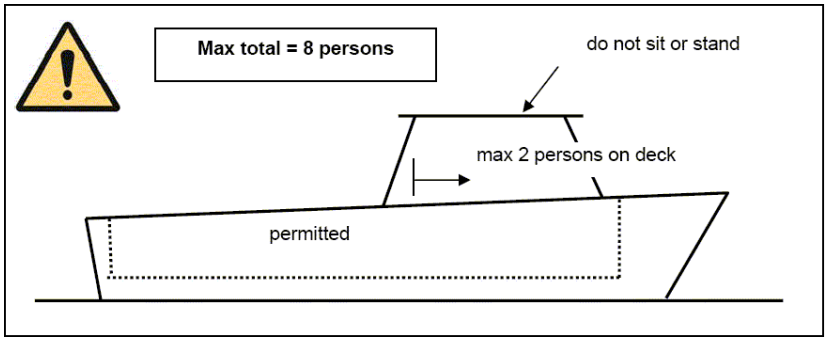

Figure 1

Example of crew area & access limitation label for control position.

(using symbol ISO 7010 – W001 "General warning")

Figure 2

Do not access

(using ISO 7010 – P004 "No thoroughfare")

Figure 3

Limited access

(using ISO 7010 – W001 "General warning")

3.2 General Initial Stability Test Procedure

3.2.1 General

(a) This procedure applies to the first boat tested of each Design Class that is identical in its class. For details of Check Stability Tests see 3.4.

(b) Ensure that the bilges of the boat are pumped as dry as practicable and fuel, water and other tanks are between about 25% and 75% full. The boat should be fitted with all normal operating equipment, and outboard motor if appropriate. No personal gear should be on board.

(c) Record the freeboard on the centreline at both bow and stern, and clearly record the position to which these freeboards have been taken, and whether the boat is in salt or fresh water. These measurements are referred to as the Datum Freeboards.

(d) Load the boat with all personal effects, stores and baggage to be carried. At least 5kg/person shall be added for open boats, and 20kg/person added for boats with overnight accommodation or for boats used for camping trips.

(e) All boats must be tested according to 3.2.2 or 3.3 (if applicable). Open power-driven boats of less than 6m L_H shall also be tested according to 3.2.3.

(f) During the tests, on boats with watertight or quick-draining cockpits, water may enter the cockpit through drains when the boat is heeled during the test, provided this water drains overboard when the test weights are moved to the centreline.

(g) The freeboard margin is, when the boat is heeled, the vertical height from the waterline to the point at which water could first begin to enter the interior or bilge. Where a hull fitting is connected to a pipe, the highest point of the pipe is the height to be measured. Pipes through which water cannot enter the interior or bilge (eg: exhaust pipes, pipes with non-return valves) can be disregarded.

(h) During the tests, when measuring the freeboard margin, one outboard engine well penetration fitted with a sealing boot may be disregarded.

3.2.2 Procedure for General Initial Stability Test

(a) Assemble a group of people up to a total weight of $98n$ kg (where n = number of persons the boat is intended to carry). Record the weight of each person. Alternatively, an 85kg set of test weights may be used instead of each person.

NOTE 85kg includes a margin of 13% to allow for the probability that a group of persons may weigh on average more than 75kg each

(b) For boats in which all parts of the Crew Area are below the sheerline, successive persons shall be placed on board so as to result in the ***least freeboard margin*** in each case. For all other boats two tests shall be conducted: the first with persons placed so as to result in the ***maximum heel angle***, After completion of this, the persons are to be moved to the positions (using the criteria of (g) below) that result in the least freeboard margin. If the measured freeboard does not satisfy Table 4, remove people or sets of test weights until this is achieved, whilst maintaining the most adverse positioning of the remainder.

(c) For each test use the following procedure. Where the crew limit is expected to exceed seven persons, up to 25% of the crew limit may be added at each of the first two stages. Successive stages of a physical test should not exceed one person.

(d) Where people are standing, as far as practicable they should remain upright without exerting much weight on any handholds. When the tester is onboard the boat, he/she should stand on the centreline as close as practicable to the centre of area of the waterplane, so that their presence does not affect the trim, and always stand in the same position when measurements are taken. Their weight may be offset against the mass of carry-on load. Persons measuring freeboards should not be on board the boat being tested.

(e) Place the first person at the main control position, as far outboard as practical but not closer than 200mm from the outboard edge. Measure the heel angle and freeboard margin (see 3.2.1 (f) and (g)).

(f) Repeat in the opposite direction of heel unless it is clear from any asymmetry of the boat that the first direction is most onerous, when only this direction need be tested. The most adverse of the two measurements of each parameter made are to be recorded.

(g) Place an additional person to one side of the Crew Area. The centre of gravity of each person shall be positioned as far to one side as practicable, provided that adjacent people are not placed with their centres-of-gravity closer than 500 mm apart in any direction, or closer than 200 mm from the outboard edge of the Crew Area, except where the deck is less than 400mm wide when practical positions are to be used .

(h) Measure the heel angle and least freeboard margin. Repeat in the opposite direction of heel unless it is clear from any asymmetry of the boat that one direction is most onerous, when only this direction need be tested. The most adverse of the two measurements made are to be recorded.

(i) Repeat (e) and (f) for further increments of not more than one person at a time, whilst observing the Hire Operator's definition of Crew Area according to 3.1 (c) and (d). Stop the test when the ***first*** of the following events happens:

- the minimum heeled freeboard before downflooding is reached according to Table 5, whether over the gunwale or through openings in the topsides
- the heel angle (degrees) is 11.5 + $\frac{(24 - L_H)^3}{520}$, see also Table 6
- the total mass of people on board reaches 98*n* kg for the desired crew limit *n*.
- the heel angle suddenly increases a large amount for a small increase in heeling moment. This is when the boat is close to a complete loss of residual stability and consequent capsize.

NOTE: The safe loading of a boat may be limited by any of these factors and there is no safe method of determining in advance which is the limiting factor for a given boat. Therefore all need to be considered and the test stopped when the first of them occurs.

Caution: Great caution must be exercised when doing this test because some boats may capsize suddenly. Therefore heeling moments should be increased carefully, especially when approaching the expected Crew Limit. As this point is approached, smaller increments

of test weights should be used. In smaller boats it is helpful to attach a capsize preventer rope (eg: from the depressed gunwale to a strong point ashore) provided that this is kept slack enough not to interfere with the test. For larger boats, to give warning of loss of stability, a continuously plotted graph of heel angle against heeling moment (product of the mass of test weights times the distance off the centreline measured parallel to the design waterline) should be used.

Caution: Because of the risk of capsize, sets of test weights should be used instead of persons in any locations from which escape would become hazardous should the boat capsize.

(j) Of the measurements made according to (c), (e) or (h), the maximum heel angle recorded shall be less than that given in Table 6, and the minimum measured freeboard margin recorded shall exceed the requirement given in Table 5.

(k) If the test is limited by downflooding over the gunwale, the maximum number of persons allowed is calculated as the maximum actual mass of persons on board, divided by 85kg per person, rounded downwards to the nearest child (or adult).

(l) If the test is limited by maximum heel angle, loss of stability or downflooding through openings in the topsides, the maximum number of persons allowed is calculated as the maximum actual mass of persons on board, divided by 98kg per person, rounded downwards to the nearest child (or adult).

NOTE: 98kg incorporates a 15% stability margin for persons weighing 85kg each, or 30% for persons weighing 75kg each.

Table 5 — Required minimum freeboard margin

Dimensions in millimetres

MCA Category	Decked Boats	Open Boats with Flotation	Open Boats without Flotation
A	10	10	$53\sqrt{L_H}$
B	40	40	$77\sqrt{L_H}$
C	70	70	$92\sqrt{L_H}$
D	100	100	$104\sqrt{L_H}$

Table 6 — Maximum heel angle for offset load test

L_H (m)	3	4	5	6	7	8	10	12	15	18	21	24
max heel angle (°)	29.3	26.9	24.7	22.7	20.9	19.4	16.8	14.8	12.9	11.9	11.6	11.5

(m) When the crew limit has been found, return to a loading condition in which between 40% and 60% of the crew limit are on board, positioned as during the test above. Record the weight and positions (lengthwise and athwartships) of each of the people on board, the consequent heeling moment applied, and the measured heel angles and freeboard margins for later comparison with Check Stability Tests conducted in accordance with 3.4.

(n) Where an open power-driven boat of L_H less than 6m of Category A or B is unable to comply with the test above when using people, it may be retested using a set of test weights totalling ($85 \times L_H / 6$) kg in respect of each person, in which case the crew limit

shall be calculated as in (j) and (k) but using (85 x L_H/6) instead of 85 and (98 x L_H / 6) instead of 98 respectively.

(o) If the boat passes this revised test, a safety sign as shown in Figure 4 shall be displayed on the boat. The sign shall comply with 3.1 (e) and Table 4.

NOTE The use of water containers instead of metallic test weights will give a less advantageous result.

Figure 4
Dinghy is vulnerable to capsize or swamping

3.2.3 Gunwale Load Test

(a) This test is only applicable to open powered boats of L_H less than 6m.

(b) Apply a vertically downwards load of 85kg to the gunwale of the boat without crew at L_H /2 forward of the stern. If this load is applied by suspending a test weight in the water, the dry mass of the test weight must be 85d, where d is a material coefficient as given in Table 7.

NOTE 85 kg includes a margin of 13% to allow for the probability that a person may weigh on average more than 75kg.

Table 7 – Material coefficient

material	lead	65/35 brass	steel	cast iron	aluminium
value of *d*	1,099	1,138	1,151	1,163	1,612

(c) If the boat swamps or capsizes under this load, a safety sign as shown in Figure 5 shall be displayed where it is clearly visible when entering the boat. The sign shall comply with 3.1 (e) and Table 4.

Figure 5
Do not sit or stand on the gunwale
(using ISO 7010 – W001 “General warning”)

3.3 Simplified Initial Stability Test

3.3.1 General

(a) This test is only applicable to boats which operate on MCA Category A, B or C waters and which are 2.08m beam cruising narrowboats over 10m in length, or unballasted decked power-driven boats over 7m in length and which satisfy the following:

- maximum height of deck or coachroof on which crew members may sit or stand is less than the maximum hull beam (excluding rubbers), ***and***
- maximum number of persons is less than $(L_H \times B^2)/15$, where L_H is the length of hull and B is the maximum hull beam excluding rubbers, both in metres.

(b) This test may be conducted by suitably competent hire operator staff.

(c) This procedure applies to the first boat tested of each Design Class that is identical in its class. If in any doubt as to whether the weight of ballast fitted or downflooding openings are the same, first conduct the Check Stability Test to confirm this. For details of Check Stability Tests see 3.4.

(d) Before conducting Initial Stability Test, prepare the boat in accordance with 3.2.1(b), (c) and (d).

(e) Identify all points in the topsides through which water may flood the interior of the boat (downflooding points). In particular identify those openings with the least height above the waterline. Engine exhausts and pipes fitted with non-return valves can be ignored. For openings piped internally, the critical height is to the highest point reached before downflooding begins. On narrowboats the forward door from the bow cockpit is often critical. In such cases if the bow cockpit sole is watertight, the downflooding point is the door sill.

(f) For decked power-driven boats over 7m in length and with permanent ballast weighing less than $(L_H^3/7)$ (kg) (L_H in metres), where the minimum ***upright*** freeboard to critical downflooding openings ***when the boat is fully loaded[16] with the maximum number of persons onboard at 75kg each*** is greater than that given in Table 8 or 9 below, no further testing is required. In using these tables, boat length should be rounded down, and beam rounded up to the nearest figures tabulated.

Note: The reduction in freeboard (mm) due to loading with crew and effects can be calculated as:

$$\text{Reduction in freeboard (mm)} = 133 \times (\text{number of crew})/(L_H \times B)$$

(g) All boats not covered by, or failing to pass (f), shall be tested according to 3.3.2.

[16] As defined in 4.1.2

Table 8

Minimum Upright Freeboard (mm) for MCA Category A and B Waters

Max Beam excl. rubbers (m)	2.5	2.75	3	3.25	3.5	3.75	4	4.25	4.5
Min Upright Freeboard to Flooding (mm)	389	412	436	460	484	508	532	555	579

Table 9

Minimum Upright Freeboard (mm) for MCA Category C Waters

Lh	**Maximum Beam (m) excl. rubbers**								
(m)	**2.5**	**2.75**	**3**	**3.25**	**3.5**	**3.75**	**4**	**4.25**	**4.5**
7	439	462	486	510	534	558	582	605	629
8	439	462	486	510	534	558	582	605	629
9	439	462	486	510	534	558	582	605	629
10	439	462	486	510	534	558	582	605	629
11	459	462	486	510	534	558	582	605	629
12	484	484	486	510	534	558	582	605	629
13	508	508	508	510	534	558	582	605	629
15	557	557	557	557	557	558	582	605	629
18	630	630	630	630	630	630	630	630	630
24	630	630	630	630	630	630	630	630	630

3.3.2 Simplified Initial Stability Test

The procedure below shall be followed.

(a) Assemble a group of persons weighing not less than 98*n* (kg), where *n* is the maximum number of persons the boat is intended to carry. Check their total weight using scales.

(b) Mark the mid-length of the hull of the boat, excluding bow/stern fittings or rudder.

(c) Position the group of persons on the side-deck, evenly fore-and-aft about the mid-length, and standing as upright as practicable, holding on lightly if necessary.

(d) Measure the angle of heel and the vertical freeboard margin to the most critical downflooding points forward and aft. BMF Technical Department can advise simple ways of measuring the heel angle.

(e) If the angle of heel is less than that given in Table 6 above, and the freeboard margin is more than 150mm for Category A or B waters, or 200mm for Category C waters, the boat has passed.

(f) If the boat fails to meet these parameters, either:

- reduce the number of persons and retest, or

- impose restrictions on the movement of persons on board (as described in 3.1 above), and retest the boat, positioning persons not permitted on side-decks as far to one side as reasonably practical, or
- conduct the General Initial Stability Test instead.

(g) If the number of persons has been reduced, the crew limit is the total weight in kg of those finally on board, divided by 98.

(h) After the maximum number of persons on board has been found, gather data for the Check Stability Test as follows.

(i) Find the total weight of a group of approximately half the maximum acceptable number of persons that has been found.

(j) Repeat the measurements in (d) when this reduced number of persons is positioned on the side-deck evenly about the mid-length, and record the heel angle and freeboard margin fore and aft for comparison with future Check Stability Tests.

3.4 Check Stability Test

(a) This procedure applies to Check Stability Tests only. For details of tests to be applied to the first boat tested of each Design Class see 3.2 or 3.3.

(b) Before conducting Check Stability Tests, prepare the boat in accordance with 3.2.1(b), (c) and (d).

(c) Replicate the total weight of people / weights and total heeling moment as recorded for this test during the Initial Stability Test (see 3.2.2(m) or 3.3.2 (i)).

(d) The resulting maximum heel angle and minimum heeled freeboard requirements shall then be compared with those of the initial heeling moment during the Initial Stability Check – see 3.2.2 (m) or 3.3.2(j). If, for the same total mass of persons added, the original heel angle is exceeded by more than 2% or the original freeboard margin is not attained, then the safe Crew Limit is to be reassessed using the Initial Stability Test procedure as 3.2 or 3.3 above (as was originally used for the boat) in its entirety.

4 FREEBOARD REQUIREMENTS

4.1 General

4.1.1 Freeboard is the least vertical height from the loaded waterline (at design trim and no heel) to any opening in the hull (including the edge of a coaming) that may admit water into the interior or bilge of a boat or a recess. Such openings are called “downflooding openings”.

4.1.2 Freeboard shall be measured when the boat is loaded with:

(a) all normal operating equipment,

(b) outboard motor if appropriate,

(c) full fuel and water tanks (or weights to make up any missing quantity) but empty sewage or waste tanks,

(d) a weight of 75kg for each person to be carried, located in practical positions (ie: on thwarts and seats where appropriate) so as to produce a sensible operating trim, ie: slightly stern down (if practicable).

(e) at least 5kg/person allowance for personal effects shall be added for day-hire boats, and 20kg/person be added for boats with overnight accommodation or those used for camping trips.

4.1.3 When a boat has no downflooding openings, the minimum freeboard to the main deck shall not be less than 80% of the requirements of 4.2.

4.1.4 The requirements given in 4.2, 4.3 and 4.4 apply to all downflooding openings except:

(a) engine exhausts or other openings that are only connected to watertight systems;

(b) openings in the sides of outboard engine wells which are of

- watertightness degree 2 and having the lowest point of downflooding more than 0.1 m above the loaded waterline, or
- watertightness degree 3 and having the lowest point of downflooding more than 0.2 m above the loaded waterline and also above the top of the transom in way of the engine mounting, provided that well drain holes are fitted, see Figure 6, or
- watertightness degree 4 and having the lowest point of downflooding more than 0.2 m above the loaded waterline and also above the top of the transom in way of the engine mounting, provided that well drain holes are fitted, and that the part of the interior or non-quick-draining spaces into which water may be admitted has a length less than $L_H/6$ and from which water up to 0.2 m above the loaded waterline cannot drain into other parts of the interior or non-quick-draining spaces of the boat, see Figure 6.

NOTE: Degrees of watertightness and means of testing are given in ISO 12216.

4.1.5 Downflooding openings may exist inboard of the side shell, eg: door sills, hatches, outboard engine trunks, sinks or drains piped to hull fittings.

4.1.6 Where the flow of water to a downflooding point inboard of the side shell is restricted by drainage holes, channels or pipes with a total cross-section area of less than $20cm^2$, the freeboard shall be not less than 70% of that required by 4.2 to 4.4 below.

EXAMPLES: Sink drains, cabin doors leading from bow cockpits on narrowboats, bilge pump outlets.

NOTE: It is recommended that doors from bow cockpits on narrowboats (which may be vulnerable to swamping from leaking lock gates) should have a minimum sill height of 75mm above the cockpit sole.

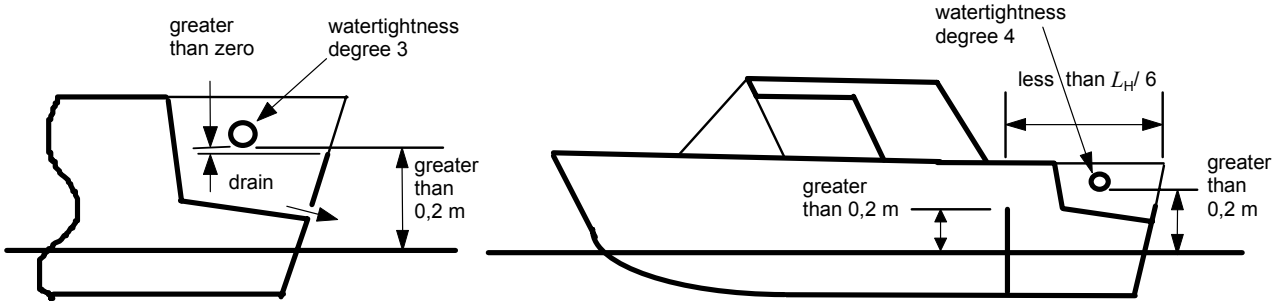

Figure 6 – Openings in Outboard Engine Wells

4.2 Freeboard Requirements for Decked Boats

The minimum freeboard to downflooding of Decked Boats shall exceed the values given in table 9.

Table 9 – Minimum Freeboard Of Decked Boats

dimensions in m

MCA Category	Minimum freeboard (m)		
	L_H less than 7m	L_H = 7 to 18m	L_H more than 18m
A	0.250	0.250	0.250
B	0.250	0.250	0.250
C	0.360	0.0245.L_H + 0.189	0.630
D	0.600	0.0409.L_H + 0.314	1.050

4.3 Freeboard Requirements for Open Boats without Flotation

The minimum freeboard to downflooding of all Open Boats not fitted with means of flotation shall exceed the values given in Table 10.

Table 10 – Minimum Freeboard of Open Boats without Flotation

MCA Category	Minimum freeboard (m)
A	0.250
B	0.400
C	0.600

4.4 Freeboard Requirements for Open Boats with Flotation

The minimum freeboard to downflooding of all Open Boats fitted with means of flotation shall exceed the values given in Table 11.

Table 11 – Minimum Freeboard of Open Boats with Flotation

dimensions in m

MCA Category	Minimum freeboard (m)			
	L_H less than 4m	L_H = 4 to 7m	L_H = 7 to 18m	L_H more than 18m
A	0.200	$0.0167.L_H + 0.133$	0.250	0.250
B	0.200	$0.0167.L_H + 0.133$	0.250	0.250
C	0.300	0.300	$0.0164.L_H + 0.185$	0.480
D	0.400	0.400	$0.0364.L_H + 0.145$	0.800

Appendix 4. Model form for providing evidence of compliance with RCD

Hire operator:	
Boat type:	Boat name:
Competent Body name:	
Competent Body credentials:	
Competent Body findings: *(Relevant reports attached)*	
Competent Body conclusions:	
Signed off for Competent Body:	Date:
Signed off for Hire Operator:	Date: