# Code of Practice for the construction, machinery, equipment, stability and operation of Chain/wire ferries acting as a Floating Bridge, carrying passengers and vehicles.

**Revision 01/18**

**Contents**

## 1 Foreword

1.1 This Code has been developed for application to passenger/vehicle carrying vessels in the United Kingdom, plying between two points and connected at both points by chains or cables.

1.2 The primary aim in developing the Code has been to set an industry standard of safety and protection for all that travel on these ferries. The level of safety it sets out to achieve this is considered to be commensurate with the expectations of the general public. The Code relates especially to the construction of craft, its machinery, equipment, stability and operation, so that those safety standards are maintained.

1.3 The companies and organisations consulted in the development of the Code were as follows:

Maritime & Coastguard Agency

King Harry Steam Ferry Company Ltd

Dartmouth-Kingswear Floating Bridge co Ltd

Tamar Bridge & Torpoint Ferry Joint Committee

Bournemouth – Swanage Motor Road and Ferry Company

Isle of Wight Council

The Archers (Reedham Ferry)

Cumbria County Council

The Health and Safety Executive (HSE) also provided support in the production of this code, which may go further than the minimum you need to do to comply with the law with regard to health and safety.

1.4 MCA will carry out the annual survey of chain ferries in accordance with this Code (Section 3.5). The HSE will carry out any investigation and subsequent enforcement action under the Health and Safety at Work etc Act 1974, liaising with the MCA for any technical advice as required.

1.5 It will be noted that the Code also deals with the subject of manning and training for the driver and members of the crew, as well as operational aspects.

1.6 In addition, however, designers and builders of new vessels will need to pay special regard to the intended area of operation and the working conditions to which the craft will be subjected when selecting the material and equipment to be used in its construction.

1.7 The builder, repairer and owner of a chain/cable ferry should take all reasonable measures to ensure that a material or appliance fitted in accordance with the requirements of the Code is suitable for the purpose intended having regard to its location in the craft, the area of operation, and the weather conditions which may be encountered.

1.8 It is important to stress that, whilst all reasonable measures have been taken to develop standards which will result in the production of safe and seaworthy vessels, total safety can never be guaranteed. As a consequence, it is most strongly recommended that the owner/operator of a vessel should take out a policy of insurance for all persons on board.

1.9 Employers have a statutory requirement in accordance with the Employers' Liability (Compulsory Insurance) Act 1969 to ensure against liability for injury or disease to their employees arising out of their employment. In addition, public liability insurance covers claims made against businesses by members of the public or other businesses. Whilst public liability insurance is generally voluntary, employers' liability insurance is compulsory. Insurance should provide cover which is reasonable for claims which may arise. If a policy of insurance is in force, a copy of the certificate of insurance should be either displayed or available for inspection by persons on board the vessel.

1.10 Compliance with the Code in no way obviates the need for vessels and/or drivers to comply with local authority requirements where applicable.

## 2 Definitions

In the Code:-

"Accommodation space" means any space, enclosed on all six sides by solid divisions, provided for the use of persons;

"Annual Survey" means a general or partial examination of the vessel, its machinery, fittings and equipment, as far as can readily be seen, to ascertain that it has been satisfactorily maintained as required by the Code and that arrangements, fittings and equipment provided are as documented in the Compliance Examination and Declaration report form;

"Category of waters A, B & C" means waters as designated in Merchant Shipping Notice M.1837 (as amended);

"Certifying Authority" means the Maritime & Coastguard Agency (MCA);

"Code" means this Code;

"Compliance Examination" means an examination of the vessel, its machinery, fittings and equipment, by an MCA surveyor, to ascertain that the vessel's structure, machinery, equipment and fittings comply with the requirements of the Code. At least part of the examination should be conducted when the vessel is out of the water;

"Crew" means a person employed or engaged in any capacity on board a vessel on the business of the vessel (this includes the driver/skipper who for the purposes of the Code is in charge of the ferry);

"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 to be used;

“Existing vessel” means a vessel which is not a new vessel;

“Freeboard” means the distance measured vertically downwards from the lowest point of the upper edge of the weather deck, or the lowest opening in the hull, to the waterline in still water;

“Length” means the distance between the foreside of the foremost permanent structure and the aftside of the aftermost fixed permanent structure of the vessel; and “fixed permanent structure” includes any portion of the hull which is capable of being detached, but which is fixed in place during the normal operation of the vessel.

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

“New vessel” means any vessel to which this Code applies, the keel of which was laid or the construction was started on or after the date of publication of this code or an existing vessel not already being a vessel to which the Code applies but obtained and newly used as such a vessel on or after that date;

“Owner/managing agent/operator” means the registered owner or the owner or managing agent of the registered owner ipso facto, as the case may be, and “Owners/managing agents” should be construed accordingly;

“Passenger” means a person carried in a vessel except:-

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

(b) a child under one year of age.

“Person” means a person over the age of one year;

“Recognised Organisation” means the Classification Societies listed in paragraph 5.2.3.2

“UK Passenger Ship Certificate for a Chain Ferry” means the certificate issued to a vessel when in compliance with this Code;

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

“Weather deck” means the main deck which is exposed to the elements;

“Weathertight” means capable of preventing the admission of a significant quantity of water into the vessel when subject to a hose test.

## 3 Application and Interpretation

### 3.1 Application

3.1.1 The Code applies to all vessels carrying passengers and vehicles constrained between two fixed points by chains/wires operating within category A, B & C waters.

3.1.3 It is the responsibility of the owner/managing operator to ensure that a vessel is properly maintained and examined in accordance with the Code.

### 3.2 Certification

To be issued with a certificate a vessel should comply with all the requirements of the Code for that operating area, to the satisfaction of the Certifying Authority.

### 3.3 Areas of operation

A vessel may be considered for the issue of a certificate allowing it to operate in one of the following three areas:-

Category A waters - narrow rivers and canals where the depth of water is generally less than 1.5 metres.

Category B waters – 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.

Category C waters – 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.

### 3.4 Interpretation

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

### 3.5 Survey and Certification

3.5.1 The craft will be issued with a UK Passenger Certificate for a Chain Ferry by the MCA which will be subject to an annual survey by the MCA and an out of water survey once in a five-year period.

3.5.2 A UK Passenger Certificate for a Chain Ferry shall be issued for a maximum validity of 1 year. Surveys shall be carried out within 3 months before expiry of the current certificate, following which the new certificate shall be issued for a period of no more than 1 year from the date of expiry of the existing certificate.

3.5.3 If a survey is incomplete or held outside the survey window a certificate cannot be issued unless alternative equivalent survey arrangements are agreed with MCA. Where surveys have been missed and are carried out outside the appropriate range dates, the extent of survey will be determined by the MCA, taking account of the period since the last survey. The MCA may at their discretion ask operators to request a UK Recognised Organisation (RO) to undertake all or part of a renewal survey on its behalf and provide MCA with a partial declaration. If a chain ferry is Classed with a UK RO, the MCA will accept a partial declaration for hull and machinery aspects of this code (sections 6, 8 and 9) from the RO in lieu of MCA undertaking this part of the survey.

3.5.4 An Out of Water Survey including an inspection of the external bottom shall be carried out at least once in any 5-year period to ensure the vessel remains satisfactory for the service intended.

3.5.5 Any variation to the survey regime or alternative construction or equipment arrangements shall be agreed with the MCA.

## 4 Access for Persons with Reduced Mobility

4.1 Vessels should be designed and operated to accommodate the needs of persons with reduced mobility as far as is practicable.

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

## 5 Construction and Structural Strength

### 5.1 General Requirements

5.1.1 All vessels should be fitted with a watertight weather deck over the length of the vessel and be of adequate structural strength to withstand the loadings from vehicles and passengers as well as preventing water ingress.

### 5.2 Structural Strength

#### 5.2.1 General

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

#### 5.2.2 Construction Materials

5.2.2.1 A vessel may be constructed of steel, wood, aluminium alloy or combinations of such materials.

5.2.2.2 Proposals to use any other material should be submitted to the Certifying Authority for consideration and approval.

#### 5.2.3 New Vessels

5.2.3.1 For entry into service, the hull of a new vessel which has been surveyed and certificated by one of the United Kingdom authorised Classification Societies accepted by the MCA should be acceptable, subject to presentation of a certificate of construction. There is no MCA requirement for chain ferries to remain in Class through the service life of the vessel.

5.2.3.2 United Kingdom authorised Classification Societies are: American Bureau of Shipping, Bureau Veritas, Det Norske Veritas-Germanischer Lloyd, Lloyds Register of Shipping, Nippon Kaiji Kyokai and Registro Italiano Navale.

5.2.3.3 A new vessel not built in accordance with 5.2.3.1 may be specially considered, provided that full information (including calculations, drawings, details of materials and construction) is presented to and approved by the MCA. In such cases, the plans submitted would be expected to demonstrate compliance with Lloyds Rules applicable for the area of service.

### 5.2.4 Existing Vessels

An existing vessel will be considered to be of acceptable strength if it is in a good state of repair and is:-

5.2.4.1 built to the standard described in 5.2.3.1, for new vessels; or

5.2.4.2 of a design with a record of at least five year's history of safe operation in an area where the conditions are no less severe than those likely to be encountered in the intended area of operation.

## 5.3 Decks

### 5.3.1 Weather Deck

5.3.1.1 A watertight weather deck referred to in 5.1.1 should extend over the overall length and have positive freeboard throughout, in any condition of loading of the vessel (minimum requirements for freeboard are given in section 12).

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

### 5.3.2 Recesses

5.3.2.1 A recess in the weather deck should be of watertight construction and have means of drainage.

## 5.4 Watertight Bulkheads and Damage Survival

### 5.4.1 New vessels

5.4.1.1 Watertight bulkheads should be provided such that the vessel will meet the damage stability requirements of section 11.

5.4.1.2 The strength of a watertight bulkhead should be adequate for the intended purpose and to the satisfaction of the MCA.

5.4.1.3 When pipes, cables, etc. penetrate watertight bulkheads, they should be provided with valves and/or watertight glands as appropriate.

5.4.1.4 A doorway fitted in a watertight bulkhead should be of watertight construction and be kept closed at all times when the vessel is in transit.

### 5.4.2 Existing vessels

In the case of an existing vessel it should be verified by the operator to the satisfaction of the MCA that the vessel is fit for the intended purpose of carrying passengers.

# 6 Weathertight Integrity

## 6.1 Hatchways and Hatches

6.1.1 A hatchway which gives access to spaces below the weather deck should be of efficient construction and be provided with efficient means of closure.

6.1.2 A cover to a hatchway should be hinged, sliding, or permanently secured by other equivalent means to the structure of the vessel and be provided with sufficient locking devices to enable it to be positively secured in the closed position.

6.1.3 A hatchway with a hinged cover which is located in the forward portion of the vessel should normally have the hinges fitted to the forward side of the hatch.

6.1.4 Whilst the vessel is in operation, hatchways should be kept closed.

## 6.2 Doorways

A doorway located above the weather deck which gives access to spaces below should be provided with a weathertight door. The door should be of efficient construction, permanently attached to the bulkhead, and sized such that the door overlaps the clear openings on all sides, and has efficient means of closure which can be operated from either side.

## 6.3 Portlights

In general, portlights should not be fitted in the main hull below the weatherdeck, unless the glazing material and its method of fixing in the frame are equivalent in strength to that required for the structure in which it is fitted.

## 6.4 Windows

Windows should in general not be fitted in the main hull below the weathertight deck. Windows and their respective frames fitted above the weathertight deck should be of a material and thickness suitable for the intended operation.

## 6.5 Ventilators and Exhausts

6.5.1 A ventilator should be of efficient construction and be provided with a permanently attached means of weathertight closure.

6.5.2 The positioning of ventilators should be carefully considered taking into account the possibility of water ingress during operation and through damage incurred to the vessel.

6.5.3 An engine exhaust outlet which penetrates the hull below the weather deck should be provided with means to prevent backflooding into the hull through the exhaust system.

## 6.6 Air Pipes

When located on the weather deck, an air pipe should be kept as far inboard as possible and have a height above deck sufficient to prevent inadvertent flooding. An air pipe, of greater than 10mm inside diameter, serving a fuel or other tank should be provided with a permanently attached means of weathertight closure.

### 6.7 Sea Inlets and Discharges

6.7.1 An opening below the weather deck should be provided with an efficient means of closure.

6.7.2 When an opening is for the purpose of an inlet or discharge below the waterline it should be fitted with a seacock, valve or other efficient means of closure which is readily accessible in an emergency.

6.7.3 Inlet and discharge pipes from water closets should be provided with shell fittings as required by 6.7.2.

### 6.8 Materials for valves and Associated Piping

6.8.1 A valve or similar fitting attached to the side of the vessel below the waterline, within an engine space or other high risk area, should normally be of steel, bronze, copper or other equivalent material.

6.8.2 When unprotected plastic piping is used it should be of good quality and of a type suitable for the intended purpose. If fitted within an engine space or fire risk area, a means should be provided to stop the ingress of water in the event of the pipe being damaged.

## 7 Water Freeing Arrangements

7.1 When a deck is fitted with bulwarks or other side structures such that the water may be trapped behind them, the bulwark/structures should be provided with efficient freeing ports.

7.2 The area of freeing ports should be at least 4% of the bulwark/structure area and be situated in the lower third of the structure, as close to the deck as practicable.

7.3 In a vessel when freeing ports cannot be fitted, other efficient means of clearing trapped water from the vessel should be provided to the satisfaction of the MCA.

## 8 Machinery

### 8.1 General Requirements

8.1.1 Generally, machinery installations should comply with the requirements given below. Other installations proposed may be specially considered, provided that full information is presented to and approved by the MCA.

8.1.2 The use of petrol engines for propulsion or auxiliary use is generally not allowed on passenger vessels. In any cases where it is proposed to use petrol engines, full particulars should be presented to the MCA for assessment.

### 8.2 Installation

8.2.1 The machinery, fuel tank(s) and associated piping systems and fittings should be of a design and construction adequate for the service for which they are intended and should be so installed and protected to reduce to a minimum the danger to persons during normal movement about the vessel, due regard being paid to moving parts, hot surfaces and other hazards.

8.2.2 Means should be provided to isolate a source of fuel which may feed a fire in an engine space fire situation. A valve or cock, capable of being closed from a position outside the engine space, should be fitted in the fuel feed pipe as close as practicable to the fuel tank.

8.2.3 In a fuel system to an engine unit, when a flexible section of piping is introduced, connections should be of a screw type or equivalent approved type. Flexible pipes should be fire resistant/metal reinforced or otherwise protected from fire. Materials and fittings should be of a suitable recognised national or international standard.

8.2.4 In the case of an existing vessel fitted with a diesel engine in which the installation of a flexible section of piping does not immediately meet the requirements, the requirements should be met when existing fittings in the fuel supply system are replaced.

### 8.3 Engine Starting

8.3.1 An engine should be provided with either mechanical or hand starting or electric starting with independent batteries.

8.3.2 Where the means of starting is by battery, the battery should be in duplicate and connected to the starter motor via a changeover switch that either battery can be used for starting the engine. Charging facilities for the batteries should be available.

8.3.3 Where vessels have duplication of propulsion i.e. two drives, then this can be considered as meeting the requirements of the Code.

## 9 Electrical Arrangements

9.1 Electrical equipment and installations shall be such that the vessel and all persons onboard are protected against electrical hazards.

9.2 Particular attention should be paid to the provision of overload and short circuit protection of all circuits, except engine starting circuits supplied from batteries.

9.3 When general lighting within a vessel is provided by a centralised electrical system, an alternative source of lighting should be provided, sufficient to illuminate the open deck and to permit work on essential machinery.

9.4 Ventilation of a battery storage space to the open air should be provided, to release the accumulation of gas which is emitted from battery types that generate hazardous gases.

9.5 Where it is proposed to use lithium-ion batteries, MGN 550 provides best practice guidance for the marine industry.

## 10 Bilge Pumping

10.1 Where machinery installations are fitted in an enclosed watertight compartment, a bilge level alarm should be fitted.

10.2 The alarm should provide an audible warning at the control position.

10.3 A vessel should have an efficient bilge pumping system consisting of at least one engine driven or independent power bilge pump, with suction pipes so arranged that any compartment can be drained when the vessel is heeled up to an angle of $10^0$. Provision to drain spaces with a hand pump should also be provided.

10.4 Where vessels have void spaces not fitted with alarms a system is to be in place to ensure regular checking during vessel operation.

## 11 Intact Stability

### 11.1 New Vessels

#### 11.1.1 General

11.1.1.1 The vessel is not required to have stability information on board. However, it is the responsibility of the owner to submit such stability information to the MCA as will demonstrate that the vessel will meet the intact and damage criteria in **all** loading conditions. Any limitations on loading should be permanently displayed for the use of the operator.

11.1.1.2 The lightship should be determined by an inclining test. However, this may be waived by the MCA where the use of such a test is inappropriate due to the arrangement of the vessel.

11.1.1.3 The lightship weight should be increased by a margin for growth, which should be 5% of the lightship weight positioned at the lightship LCG and vertical centre of the weather deck amidships or lightships KG, whichever is the higher. (The lightweight margin should not be used in practice to increase maximum cargo deadweight.)

11.1.1.4 Curves of statical stability should be produced for:

(a) Lightship condition.

(b) Fully fuelled no cargo.

(c) Fully loaded condition with maximum cargo weight.

(d) A range of conditions for various combinations of loading. (note – the purpose of these conditions is to determine the loading limit for the vessel)

11.1.1.5 The curves of statical stability for the loaded condition should meet the following criteria:

1. The area under the righting lever curve (GZ curve) should be not less than 0,055 metre-radians up to $30^0$ angle of heel and of less than 0.09 metre-radians up to $40^0$ angle of heel or the angle of downflooding if this angle is less; and

2. The area under the GZ curve between the angle of heel of $30^0$ and $40^0$ or between $30^0$ and the angle of downflooding if this is less than $40^0$, should be not less than 0.03 metre-radians.

3. The righting level GZ should be at least 0.20 metres at an angle of heel equal to or greater than $30^0$.

4. The maximum GZ should occur at an angle of heel of not less than $25^0$.

5. After correction for free surface effects, the initial metacentric height (GM) should not be less than 0.35 metres.

11.1.1.6 If the vessel does not meet the stability criteria given in 11.1.1.5, the vessel should meet the following criteria:

1. The area under the righting lever curve (GZ curve) should not be less than 0.085 metre-radians up to θ gz max when θ gz max = $15^0$ and 0.055 metre-radians up to θ gz max when θ gz max = $30^0$ .

When the maximum righting lever, GZmax, occurs between θ = $15^0$ and θ = $30^0$ the required area under the GZ curve up to θ gz max should not be less than: A = 0.055 + 0.002 ($30^0$ – θ gz max) metre-radians.

Where: θ gz max is the angle of heel in degrees at which the righting lever curve reaches its maximum.

2. The area under the righting lever curve between θ = $30^0$ and θ = $40^0$ or between θ = $30^0$ and the angle of downflooding θ if this angle is less than $40^0$, should not be less than 0.03 metre-radians.

3. The righting lever GZ should not be less than 0.2m at an angle of heel of $30^0$.

4. The maximum righting lever should occur at an angle of not less than $15^0$; and

5. The initial metacentric height GM should not be less than 0.35m.

11.1.1.7 Vessels failing to comply with the criteria of either 11.1.1.5 or 11.1.1.6 may be given special consideration. In such a case, calculations should be submitted to the MCA for consideration.

## 11.2 Damage Stability of New Vessels

11.2.1 A vessel should be provided with watertight bulkheads which are arranged such that minor hull damage which results in the free-flooding of any two compartments for craft operating in Category C waters and one compartment for craft in Category A & B waters up to a maximum of 250 passengers, will not cause the vessel to float at a waterline which is less than 75mm below the weather deck at any point. Minor damage should be assumed to occur anywhere in the length of the vessel but not on a watertight bulkhead. Standard permeabilities should be used in this assessment as follows:

Appropriated for stores 60%

Appropriated for stores but not a substantial quantity thereof 95%

Appropriated for accommodation 95%

Appropriated for machinery 85%

Appropriated for liquids 0 or 95% whichever results in the more onerous requirement

11.2.2 In the damaged condition, the residual stability should be such that the angle of equilibrium does not exceed $7^0$ from the upright, the resulting lever curve has a range to the down flooding angle of at least $15^0$ beyond the angle of equilibrium, the maximum righting lever within that range is not less than 100mm and the area under the curve is not less than 0.015 metre-radians.

11.2.3 Particular attention is to be given to the position of downflooding points which will restrict the range of the residual GZ curve.

11.2.4 Sufficient results of calculations should be submitted to demonstrate that both intact and damage stability requirements are met in all the loading conditions specified in 11.1.1.4.

### 11.3 Existing Vessels

Existing vessels should show compliance with 11.1 and 11.2 where practicable. In circumstances where full compliance is not possible further consideration will be given to alternative arrangements/procedures to provide an equivalent level of safety. It is the responsibility of the operator to submit such calculations to the MCA.

### 11.4 Approval of Stability Information

11.4.1 The owner is responsible for arranging the inclining test, where appropriate, and for the submission of stability information by a competent person.

11.4.2 The stability information will be approved for form and content only and the basic data will be the responsibility of the competent person.

11.4.3 The book will be approved by the MCA once satisfied with the form and content together with the competency of the person producing the information.

11.4.4 Existing vessels not fully complying with the requirements of section 11.1 and 11.2 should submit stability information for approval.

## 12 Freeboard and Freeboard Marking

### 12.1 General

A vessel should have a freeboard mark placed either, on each side of the vessel at a position on each corner or in the centre on each side.

### 12.2 Minimum Freeboard

The freeboard should be not less than that determined by the following requirements:-

#### 12.2.1 New Vessels

A new vessel when in still water and loaded with fuel, stores and weights representing the total number of persons (taken as 75kg per person) and cargo (vehicles) should be upright and:-

.1 in the case of a vessel with a continuous watertight weather deck which is neither stepped nor recessed nor raised, have a freeboard measured down from the lowest point of the weather deck of not less than 300mm for a vessel of 7 metres in

length or under and not less than 750mm for a vessel of 18 metres in length or over. For a vessel of intermediate length, the freeboard should be determined by interpolation;

.2 in the case of a vessel with a continuous watertight weatherdeck which may be stepped, recessed or raised, have a freeboard measured down from the lowest point of the well deck or not less than 200mm for a vessel of 7 metres in length or under and not less than 400mm for a vessel of 18m in length or over.

.3 in the case of either an open or partially open vessel, have a clear height of side (i.e. the distance between the waterline and the lowest point of the deck) of not less than 400mm for a vessel of 7 metres in length or under and not less than 800mm for a vessel of 18 metres in length or over.

### 12.2.2 Existing Vessels

.1 Generally, an existing vessel should comply with 12.2.1.

.2 In the case of an existing vessel which is unable to comply with 12.2.1, the MCA may be prepared to consider a lesser standard of “operational freeboard” or “clear height of side”. However, in such cases it will be necessary for the owner to provide the MCA with a detailed account of the operational history of the vessel.

### 12.2.3 All vessels

Having regard to 12.2.1 and 12.2.2 above, a vessel should be assigned a freeboard which corresponds to the draught of the vessel when fully loaded with fuel, stores and the total number of passengers, crew and vehicles.

### 12.3 Freeboard Mark and Loading

12.3.1 The freeboard mark should measure 300mm in length and 25mm in depth. The marking should be permanent and **painted** black on a light background or in white or yellow on a dark background. The top of the mark should be positioned at the waterline corresponding to the draught as referred to in 12.2.3, at a position on each corner of the craft.

## 13 Life Saving Appliances

13.1 Life-saving appliances should be provided in accordance with the requirements as given in Table 1.

13.2 Life-saving appliances should be supplied for all persons carried on board.

13.3 Life-saving appliances should be of a type which has been approved by the MCA or equivalent standard.

| Table 1 |
| --- |
| Life-Saving Appliances – all vessels |
| 100% buoyant apparatus for all passengers and crew.<br>For small vessels carrying less than 12 the buoyant apparatus can be substituted by lifebuoys.<br>Buoyant apparatus and lifebuoys to be suitably marked with retro-reflective tape as per MGN 105 (M+F).<br>Up to 250 passengers – 4 lifebuoys.<br>More than 250 passengers – 8 lifebuoys.<br>At least one lifebuoy on each side of the vessel shall be fitted with a buoyant lifeline.<br>Vessels operating in Cat A & B waters shall have at least two lifebuoys fitted with self-activating lights.<br>Vessels operating in Cat C waters shall have at least two lifebuoys fitted with self-activating lights suitably positioned and in addition, on vessels carrying more than 250 the lights should be supplemented by smoke floats.<br>Self-igniting lights are not required on vessels which only operate between sunrise and sunset.<br>Every vessel shall be provided with:-<br>- a tannoy system or suitable alternative to inform and direct passengers in an emergency. |

## 14 Fire Safety

### 14.1 New and Existing Vessels

14.1.1 The engine compartment should be separated from passenger spaces and the vehicle deck by “A” Class boundaries and insulated to “A” 15 standard.

14.1.2 Combustible materials and liquids should not be stowed in the engine space.

14.1.3 A fixed fire extinguishing system should be fitted, which can be:-

.1 $CO_2$ drenching.

.2 water drenching.

.3 foam drenching.

On small vessels, the fixed system may consist of a portable extinguisher arranged to discharge into the space.

Proposed systems not listed above may be accepted providing full details are forwarded to the MCA for consideration.

14.1.4 Thermal or acoustic insulation fitted inside engine spaces should be of non-combustible material.

14.1.5 In machinery spaces which are predominantly unattended, smoke alarms should be fitted which will give an alarm at the driver's position and crew mess where applicable.

14.1.6 In the event of a fire, machinery space openings must be capable of being closed off, this includes skylights, access doors and ventilator openings. This is particularly important where $CO_2$ is being used to extinguish the fire. In cases where chains pass through the machinery space casing, the size of these openings should be kept to a minimum and the concentration of $CO_2$ increased accordingly.

14.1.7 In the event of a fire in the machinery space, fuel supply lines should be capable of being closed quickly and readily from outside of the machinery space.

14.1.8 Fire plans showing fire appliances and closing devices should be displayed at the driver's position and on the vehicle deck.

14.1.9 Vessels should be fitted with fire appliances as listed below:-

Vessels carrying less than 25 passengers and up to 3 vehicles – not less than two multipurpose fire extinguishers with a minimum fire rating of 13A/113B.

Vessels carrying from 25 to 50 passengers and up to 10 vehicles – not less than four multipurpose fire extinguishers with a minimum fire rating of 13A/113B on the vehicle deck and two in the machinery space.

One hand operated fire pump with sea suction outside of the machinery space including one fire hose of adequate length with 10mm nozzle and suitable spray nozzle.

Vessels carrying more than 50 passengers and in excess of 10 vehicles – at least four multipurpose fire extinguishers with a minimum fire rating of 13A/113B on the vehicle deck and four in the machinery space.

One power operated fire pump with suitable hose(s) and 10mm nozzle(s), capable of reaching any position on board. If the power pump is not located outside of the machinery space then a hand operated pump should also be fitted with sea suction outside of the machinery space.

Where vessels have a cooking area or galley for the crew, one fire blanket – light duty type.

Where existing vessels do not meet these standards, equivalent arrangements will be considered on a case by case basis.

**14.2 Cleanliness** (and pollution prevention)

14.2.1 Provision should be made to retain any oil leakage within the confines of the engine space.

14.2.2 In a vessel constructed of wood, measures should be taken to prevent absorption of oil into the structure.

14.2.3 In a situation where it is totally impracticable to fit a metal drip tray in way of the engine, the use of the engine bearers as a means of containment of the oil may by accepted when they are of sufficient height and have no limber holes. Provision should be made for the cleaning of spillage and drainage collected in the engine space.

14.2.4 Efficient means should be provided to ensure that all residues of persistent oils are collected and retained on board for discharge to collection facilities ashore.

14.2.5 The engine space should be kept clean and clear of oily waste and combustible materials.

### 14.3 Open flame gas appliances

14.3.1 If used on board, open flame gas appliances provided for cooking, heating or any other purpose should comply with the requirements of EC Directive 90/396/EEC or equivalent.

14.3.2 Installation of an open flame gas appliance should comply with the provisions of Annex I of the Directive.

14.3.3 Materials which are near open flame cooking or heating appliances should be non-combustible, except that these materials may be faced with any surface finish having a Class 2 surface spread of flame when tested in accordance with an acceptable standard.

14.3.4 Combustible materials and other surfaces which do not have a Class 2 surface spread of flame rating should not be left unprotected within the following distances of the cooker:-

.1 400mm vertically above the cooker, for horizontal surfaces, when the vessel is upright.

.2 125mm horizontally from the cooker, for vertical surfaces.

14.3.5 Curtains or any other suspended textile materials should not be fitted within 600mm of any open flame cooking, heating or other appliances.

### 14.4 Furnishing materials

14.4.1 Only Combustion Modified High Resilient (CMHR) foams should be used in upholstered furniture.

14.4.2 Upholstery fabrics should satisfy the cigarette and butane flame tests or equivalent.

### 14.5 Smoke detection

In a vessel carrying 15 or more persons, efficient smoke detectors should be fitted in the engine space(s) and spaces containing open flame cooking and/or heating devices.

### 14.6 Means of escape

14.6.1 Each space for the use of passengers should have two means of escape, as widely separated as practicable.

14.6.2 Machinery spaces should have two means of escape, as widely separated as practicable. In the case where this is clearly impracticable due to size of the machinery space, then this will be specially considered based on the operation of the vessel.

14.6.3 Vehicles should be positioned on the deck with enough horizontal clearance to allow persons to evacuate their vehicles in an emergency. If due to the construction of the vessel this is not possible it must be demonstrated to the MCA that effective equivalent arrangements are in place. Sufficient clear space on the vessel to muster passengers in the event of an emergency should be provided.

## 15 Radio Equipment

15.1 Although it is not a requirement to have VHF equipment fitted, it is strongly recommended. Due to the restrictions on manoeuvrability of these vessels and the reliance on other vessels for help it is considered that good communications are of paramount importance.

15.2 Where it is considered that VHF is not required on a certain route full details should be passed to the MCA for consideration.

## 16 Bulwarks, guard rails and handrails

In general, these vessels should comply with the Merchant Shipping requirements or an acceptable equivalent. However, as these vessels have restricted manoeuvrability then recovery of persons from the water is difficult. It is therefore recommended that the existing heights of bulwarks, rails etc. are increased by 300mm above the standard height of 1m. All measures should be taken to prevent persons inadvertently falling over board.

## 17 Passenger numbers

Each vessel should be assessed and the passenger numbers calculated based on the effective area available for passengers and vehicles and for passengers only. Once the numbers are allocated this will be used for the calculation of life saving appliances.

## 18 Operational

It is recommended that operators use a simple safety management system. The purpose of the system is to:

.1 Ensure safety on board for passengers and crew;

.2 Prevent 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.

## 18.1 Contingency Planning

Effective contingency planning should be in place to cover the following (not exhaustive)

.1 man over board.

.2 fire on vehicle deck.

.3 fire in machinery space.

.4 medical emergency.

.5 damage condition – flooding.

.6 loss of power.

.7 damage to and parting of chains/wires.

.8 communication with shore bases, emergency services and harbour authority.

## 18.2 Maintenance

Planned maintenance system in place to address:-

.1 primary machinery. (main propulsion, hydraulic drive units, chain/wire gypsy drives)

.2 auxiliary machinery.

.3 fire-fighting equipment.

.4 dry-docking intervals.

.5 defect reporting and feedback.

## 18.3 Lights

Unless local harbour bylaws specify to the contrary, vessels shall exhibit (by day and night), two flashing lights where they can be best seen. The light at the forward end of the vessel should be operated during each crossing.

# 19 Training

The skipper and operating crew will be expected to demonstrate to the MCA that they are competent to perform the duties expected of them. This will include the following competence levels;

Skipper

- demonstrate skills in driving and handling the ferry.
- demonstrate knowledge of company procedures, standing orders and instructions.
- demonstrate knowledge in rules of the road for passing vessels and any local harbour authority rules.

- demonstrate competence in reacting to emergencies as listed under 18.1 (contingency planning) including the use of communications with shore bases, emergency services and harbour authorities.
- demonstrate knowledge as to the working of the ferry including safety equipment and related systems.

Crew

- demonstrate knowledge in the position of safety equipment and associated systems.
- demonstrate knowledge as to the company instructions relating to their position.
- demonstrate their ability in handling emergency situations as listed in the contingency planning list.

## 20 Manning

The manning of the vessel should reflect the size, complexity and operating area of the vessel. The operators shall demonstrate to the MCA that the current manning scales are acceptable.

## 21 Medical

Every driver and crew member shall be medically fit to perform their duties. It is recommended that personnel be periodically assessed against appropriate local authority or Boat Master licence standards.