



INSTRUCTIONS FOR THE GUIDANCE OF SURVEYORS ON

# **STRUCTURAL FIRE PROTECTION**

MSIS27 CHAPTER 7

Rev 12.22



**PREFACE**

- 0.1 These Marine Survey Instructions for the Guidance of Surveyors (MSIS) are not legal requirements in themselves. They may refer to statutory requirements elsewhere. They do represent the MCA policy for MCA surveyors to follow.
- 0.2 If for reasons of practicality, for instance, these cannot be followed then the surveyor must seek at least an equivalent arrangement, based on information from the owner/operator. Whenever possible guidance should be sought from either Principal Consultant Surveyors or Survey Operation Branch, in order to maintain consistency between Marine Offices.

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## RECENT AMENDMENTS

The amendments made in the most recent publication are shown below, amendments made in previous publications are shown in the document Amendment History.

Version Number	Status / Change	Date	Author Reviewer	Content Approver	Next Review Date/Expiry Date
06.20	<ul style="list-style-type: none"> <li>Amendments to reflect publication of MGN628 and MGN629</li> </ul>	21/6/2020	D Fenner	G Stone	01/06/2023
09.21	<ul style="list-style-type: none"> <li>Amendments to reflect publication of MSN1871 Amendment No.2</li> </ul>	31/8/2021	D Fenner	G Stone	01/09/2023
04.22	<ul style="list-style-type: none"> <li>Amendments to text to clarify suitably qualified personnel</li> <li>Amendments to numbering</li> </ul>	09/03/2022	D Fenner	G Stone	01/03/2024
08.22	<ul style="list-style-type: none"> <li>Amended definition of Fit for Purpose</li> </ul>	01/07/2022	D Fenner	G Stone	01/07/2024
12.22	<ul style="list-style-type: none"> <li>Surveyors should refer to Sections 1.23 and 1.24 of <a href="#">MSIS27 Chapter 1</a> when reviewing modifications to vessels.</li> </ul>	2/12/22	D Fenner	G Stone	28/11/24

## MSIS27 Chapter 7

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## 7.1 GENERAL

- 7.1.1 New vessels of less than 15m LOA built prior to 21 July 2020 are constructed in accordance with Seafish standards for structural fire protection and after that date to the Construction Standards in [MGN 628](#).
- 7.1.2 [MSN 1871 Amendment No.2](#) requires that vessels built to [MGN 628](#) shall be maintained to that standard. Vessel which were built to a Construction Standard should be maintained in such a manner as to be in accordance with the Construction Standard applicable at the time of construction and as set out in the applicable sections of this Chapter. Previous standards include those set out in [Chapter 1 Annex 1](#) Section 4.2.16 and can be found here.
- 7.1.3 If the vessel joined the Register after 16 July 2007 through the Registration Survey process, the vessel must be maintained in accordance with the standard required by the MCA at the time of its Registration Survey to allow its Registration
- 7.1.4 For existing vessels of less than 15m LOA, built to Standards which did not set out requirements for Structural Fire Protection or where at the time of construction Standards did not exist, the existing arrangements shall remain acceptable provided that it continues to remain fit for purpose. For the purposes of these Instructions, “fit for purpose” For the purposes of these Instructions, “fit for purpose” should be interpreted using section 4.2 of [MSIS27 Chapter 1 Annex 1](#).
- 7.1.5 Details of structural fire protection in this chapter are mainly relevant to vessels of 15mLOA and over, the requirements of which are stipulated in Chapters 5 of [MSN 1872](#) & of the [MSN 1873](#). Reference to ‘Over 24 m’ means those vessels of 24 m registered length and above.
- 7.1.6 New vessels must conform with the structural fire protection requirements laid down in the Codes and detailed in this chapter. Any reference to an “F” class division (which has the standard similar to “B-30” division, but not meeting the non-combustible requirement), may be treated as equivalent to a “B-15” class division.
- 7.1.7 Existing vessels may be exempt from parts of the requirements but any structural alterations must comply with the requirements for new construction.
- 7.1.8 Flag-in vessels must comply with the requirements for new construction as far as is reasonable and practicable. Any considerations for exemption, including alternative arrangements, must be submitted to a Consultant Fishing Vessel Surveyor for consideration. This consideration will only be possible if accompanied by drawings showing the full arrangements of structural fire protection.
- 7.1.9 Surveyors should refer to Sections 1.23 and 1.24 of [MSIS27 Chapter 1](#) when reviewing modifications to vessels.

## 7.2 FIRE CONTROL PLANS

- 7.2.1 Fire control plans are required on all new vessels of 24 m and above, or on existing vessels over 45 m. Existing vessels under 45 m should be encouraged to provide safety plans as part of their risk assessment. The surveyor should ensure that these plans are up to date, suitably displayed and illuminated.
- 7.2.2 It is not a requirement that fishing vessels under 24 metres registered length exhibit fire control plans but it is recommended that such plans are displayed on the larger vessels in the 15 to 24 metre registered length category.
- 7.2.3 The structural fire protection arrangements shown on the fire control plan should clearly indicate details of all stairways, machinery spaces, lift, vertical light and air shafts, the divisions (bulkheads and decks) separating accommodation spaces from other spaces such as fish holds and main store spaces. Standards of insulation for decks and bulkheads, fire resisting doors, shutters and ventilation dampers should be shown and the plan is to be drawn to a sufficiently large scale to permit a full and clear presentation of the required information. As the opportunity occurs the surveyor should impress on owners and the vessel's officers the importance of the presence on board of up to date and comprehensive information so that the personnel responsible for fire-fighting are fully aware of the structural protection arrangements on their particular vessel.
- 7.2.4 New fire plans should conform with IMO Resolutions A.654(16), and A.952(23) which requires fire plans to use the symbols shown in ISO 17631 and A.756(18) and a set of fire control plans or a booklet containing such plans to be permanently stored in a prominent marked weathertight enclosure outside the deckhouse for the assistance of shoreside fire brigades. MSC/Circ.451 refers.

## 7.3 RENEWAL SURVEYS/INSPECTIONS (ALL CONSTRUCTION MATERIALS)

- 7.3.1 The surveyor should examine all 'A' class and 'B' class divisions and be satisfied that their integrity has not been impaired. Such an examination would not normally include the sighting of concealed insulation, but the surveyor has discretion to require removal of such parts of linings to enable checking the condition of insulation. The surveyor should also take advantage of any opportunity afforded by the removal of linings for other purposes to make an examination of the insulation. It is common to find unapproved penetrations, and these must be correctly sealed. Damage to exposed insulation should be repaired, and protected where necessary. Care should be taken on older vessels where asbestos may be present, and suitable precautions are required, reference [MGN 429](#), surveyor risk assessment [MSF 6516](#) S&I 9 and [MSIS 30](#) Chapter 23.
- 7.3.2 All doors and other means for closing openings in Class 'A' and Class 'B' divisions should be inspected and their condition and efficiency checked. Locks and clasps should be operated to ensure the doors fasten shut and any missing devices must be replaced. Fire doors on stair wells, galleys and machinery space casing should have efficient self-closing devices. Hold backs (except solenoid operated) are not

acceptable. These inspections are normally carried out when the vessel is in the upright condition but surveyors should take advantage of any opportunity to check the operation of doors and shutters which are required to operate at any angle of the vessel's inclination up to 3.5 degrees. The surveyor should see that the means for operating dampers in ventilation and other trunkways are in good working order and clearly identified and marked for open/closed position.

- 7.3.3 The surveyor should check that any repainting or varnishing is in compliance with the required standard for low flame spread, by application of certified materials only, reference [MGN 316](#).
- 7.3.4 Bunk mattresses should be checked to ensure that flammable foam types are not used. This is simply identified by breaking off a small sample and attempting ignition with a naked flame. If so identified, then an Improvement Notice may be issued, with the prohibition of smoking within the cabin, until replacements are available. If foam is used, rather than the spring type, then it should be certificated as non-flammable, in accordance with IMO Resolution A688(17).
- 7.3.5 In the course of a survey the surveyor should check for the possible existence of any store-rooms and lockers or other spaces which are being used for the storage of materials or for any purposes other than those for which they have been designated which may affect the existing fire protection arrangements. Only the designated paint store, having a fixed fire-fighting system, should be used for storage of combustible liquids.
- 7.3.6 If any alterations or other work is done to a vessel the surveyor should ensure that the structural fire protection arrangements are not impaired. Owners should be made aware of the importance of their giving prior notice of any proposed alterations which may affect the structural fire protection arrangements, together with sufficient information and such drawings as may be necessary to enable the matter to be given proper consideration and any modifications should be duly recorded on file. When alterations are made to the fire protection arrangements it is essential that the vessel's fire control plan and the copy held by the MCA are amended accordingly.
- 7.3.7 Any existing vessel **of 15m LOA and over**, constructed to the Safety Provisions Rules 1975 or **of less than 15m LOA and Registered as a Fishing Vessel prior to the entry into force of [MSN 1871 Amendment No.2](#)** will remain acceptable, although any exemptions previously issued should be reviewed at each renewal survey with the intention of upgrading to conform with the Codes, where practicable and reasonable.



## 7.4 INITIAL SURVEYS - HULLS CONSTRUCTED OF STEEL OR OTHER EQUIVALENT MATERIAL

### 7.4.1 GENERAL

7.4.1.1 Materials of the ship structure should be identified, clearly distinguishing any made of aluminium alloy. Vessels under 15 m LOA will be constructed to Seafish standards and certificated by Seafish prior to 21 July 2020 and after that date constructed to the Standards in [MGN 628](#) and Certificated either by a Fishing Vessel Certifying Authority if the vessel is less than 12m RL or by MCA if the vessel is 12m RL to less than 15m LOA. Vessels 15m and over will be constructed to the standards of a classification society but structural fire protection remains the responsibility of the MCA survey.

7.4.1.2 The engine space boundaries of decked GRP vessels and decked wood vessels are to be capable of meeting a B15 Standard of fire protection. This level of protection is to apply to the deckhead and bulkheads in their entirety, and hull boundaries from 300mm below the waterline to the deckhead. Alternatively, where the total installed power does not exceed 400kW, a fixed fire extinguisher system will be accepted in lieu of B15 fire protection.

7.4.1.3 For aluminium vessels where the total installed power exceeds 400kW, a B15 standard of fire protection is to be supplied in the machinery space as described in Paragraph 7.4.1.2 above. This level of protection is in addition to the installation of a fixed fire extinguisher system.

7.4.1.4 New vessels between 15 and 24 m length are required to have “A” class bulkheads for the machinery space and galley with “B” class accommodation divisions. This is supplemented by a fixed extinguishing system in the main engine room and a fire detection system throughout.

7.4.1.5 New vessels over 24 m are required to have, in general terms, “A” class bulkheads for the machinery space and galley, with a choice of protection in the accommodation utilising methods IF, IIF, or IIIF which are different combinations of insulation, sprinkler and fire detection, as derived from the Torremolinos Protocol. A fixed extinguishing system is required in the main engine room. The precise minimum category of structural fire protection for bulkheads and decks is given in a tabulated format in [MSN 1873](#).

7.4.1.6 Plans showing the proposals for structural fire protection and the particulars of the insulating materials to be used should be submitted for consideration and approval before construction is commenced. Drawings for ventilation arrangements, and methods of cable and pipe penetrations are also required.

7.4.1.7 [MSN 1874](#) provides technical information and guidance about the procedures for obtaining type approval in conformity with the Marine Equipment Directive and other UK procedures for type approval by Notified and Nominated Bodies,

respectively. It also gives information regarding the United Kingdom's policy for enforcing these requirements, and other standards to be applied to equipment on board United Kingdom ships.

- 7.4.1.8 Where approved materials or fittings are used, such products must be fitted in accordance with the conditions stated in the approval certificate. Approval certificates alone are not sufficient to show satisfactory installation.
- 7.4.1.9 Standards given in the Merchant Shipping (Fire Protection) Regulations, as amended, are acceptable as equivalent arrangements to those required by [MSN 1872](#) and [MSN 1873](#).
- 7.4.1.10 Standards given in the MCA publication "Construction – Fire Protection, Fire Detection and Fire Extinction, implementing SOLAS Ch.II–2, 2002" are similarly acceptable to the MCA for standards onboard fishing vessels. The International Code for Fire Safety Systems (FSS Code) and the International Code for Application of Fire Test Procedures (FTP Code) provide further details of standards for the systems required by Ch.II-2 of SOLAS.
- 7.4.1.11 The standards applied for structural fire protection are largely common with other ship types and references to relevant guidance in Instructions to Surveyors for Fire Protection ([MSIS 12](#)) are given below.

## 7.4.2 INSULATION INSTALLATION

7.4.2.1 See [MSIS 12](#) Paragraphs 11.2, 11.3 and 11.7 for guidance regarding:

- i. Boundaries and intersections of insulated 'A' Class
- ii. Mineral wool insulations
- iii. Oil and oil vapour barriers
- iv. Board insulations
- v. Sprayed insulations
- vi. Intumescent materials
- vii. 'B' Class divisions

## 7.4.3 PIPE PENETRATIONS

- i. Pipes Penetrating 'A' Class Divisions - See [MSIS 12](#) Paragraph 11.4
- ii. Piping penetrating watertight 'A' Class divisions - See [MSIS 12](#) Paragraph 11.4.3.
- iii. The insulation of pipe penetrations - See [MSIS 12](#) Paragraph 11.4.4.
- iv. Pipes penetrating B class Divisions - See [MSIS 12](#) Paragraph 11.8.

## 7.4.4 CABLE PENETRATIONS

- i. Electric cables penetrating non-watertight 'A' Class divisions – See [MSIS 12](#) Para 11.5

- ii. Cables Penetrating 'B' Class Divisions – See [MSIS 12](#) Para 11.9

## 7.4.5 DOORS

- i. 'A' Class Doors and Shutters – See [MSIS 12](#) Para 11.6.
- ii. 'B' class doors – See [MSIS 12](#) Para 11.10.

## 7.4.6 VENTILATION

7.4.6.1 For guidance on:

- i. Ventilation and Fire Dampers – See [MSIS 12](#) Para 11.13.
- ii. Independent ventilation systems – See [MSIS 12](#) Para 14.9.1.
- iii. Ducts from machinery spaces of Category A, galleys or cargo spaces – See [MSIS12](#) Para 14.9.5.
- iv. Galley exhaust ducts – See [MSIS 12](#) Para 14.9.7.
- v. Openings for recirculation or exhausting air – See [MSIS 12](#) Para 14.9.8.
- vi. Ducts passing through 'A' Class divisions – See [MSIS 12](#) Para 12.9.11.
- vii. Draught stops – [MSIS 12](#) Para 12.11.6.3.

7.4.6.2 Specific guidance for FVs additional to that above is given below:

7.4.6.2.1 Fishing vessels over 24 m length allow vertical ducts which pass through 'A' Class decks and have a cross sectional area less than 0.085 m<sup>2</sup> to be without fire dampers. Vertical ducts exceeding 0.02 m<sup>2</sup> should be insulated to the same 'A' Class standard as the decks through which they pass by continuing the insulation fitted to the deck plating along the ducts for a distance of not less than 380 mm from the deck plating.

7.4.6.2.2 Ducts having a cross sectional area over 0.085 m<sup>2</sup> should be constructed of steel or other equivalent material and be fitted with automatic and manual fire dampers, or an approved automatic fire damper operable from both sides of the division.

7.4.6.2.3 However, fire dampers are not required to be fitted in a closed duct which passes through a space surrounded by 'A' Class divisions and has no openings into the space, provided that the duct:

- has the same thickness as a steel coaming of the same size as indicated in the previous table;
- is adequately supported and stiffened; and
- is insulated to the same 'A' Class standard as the divisions through which it passes or to the higher standard when the divisions have differing 'A' Class standards.

7.4.6.2.4 Ventilation ducts passing through 'B' Class bulkheads, ceilings or linings should be treated as indicated in the following table;

Cross sectional area of duct	Type of duct	Treatment
0.02 m <sup>2</sup> and smaller	any	To be fitted neatly through the division with minimum possible gaps. Any sealant used should be non-combustible and not produce excessive quantities of smoke or toxic products
Exceeding 0.02m <sup>2</sup>	Steel ducts.	To be collared to the division with steel sleeves.
	Spiro ducts. Aluminium alloy ducts.	To be passed through a steel sleeve having a length and thickness of not less than 900 mm and 1 mm respectively, collared to the division. The gap between the sleeve and the duct should be effectively packed with a non-combustible material and the ends sealed with a suitable flexible sealant.

## 7.4.7 LAMINATES, VENEERS, PAINTS AND OTHER SURFACE FINISHES

7.4.7.1 For guidance see [MSIS 12](#) para 11.14, 12.11.1 and 11.15.

### 7.4.7.2 DECK COVERINGS

7.4.7.2.1 Deck coverings are not included in [MSN 1872](#), but should be of a type that will not readily ignite.

7.4.7.2.2 More stringent requirements apply to vessels over 24 m, as indicated in [MSIS 12](#) Para 11.16 and 14.11.7.1.

### 7.4.7.3 ORGANIC FOAMS, CORK AND OTHER HIGHLY FLAMMABLE AND/OR TOXIC MATERIALS.

**7.4.7.3.1** General comment

7.4.7.3.1.1 See [MSIS 12](#) Para 11.17.1.

**7.4.7.3.2** Insulating materials

7.4.7.3.2.1 Insulating materials which are used in accommodation spaces, service spaces, control stations and machinery spaces for fire, thermal (comfort), acoustic or any other purpose, are required to be non-combustible except that this requirement does not apply to:

- refrigerated compartments; and
- valves and pipework in hot and cold service systems and refrigerating machinery provided that the exposed surfaces of the combustible insulation have a Class 1 surface spread of flame rating.

7.4.7.3.3 See also [MSIS 12](#) Para 11.9.3 – any references to the Merchant Shipping (Fire Protection - Large Ships) Regulations 1998 should be taken instead to refer to the relevant Code of Practice as appropriate to the size of the fishing vessel.

- 7.4.7.3.4** Recommendations as to the use of organic foams
- 7.4.7.3.4.1** See [MSIS 12](#) Para 11.17.2.2 and 11.17.2.3. A cargo space includes a fish hold. For vessels **15–24 m length of less than 24m** this principle may be relaxed as long as the engine room bulkhead has been fitted with fire insulation to the first beam/frame in the fish hold, before applying the foam insulation.
- 7.4.7.3.5** Regular inspection
- 7.4.7.3.5.1** See [MSIS 12](#) Para 11.17.3.4.
- 7.4.7.3.6** Organic foams in furniture
- 7.4.7.3.6.1** [MSIS 12](#) Para 11.17.4. Combustion Modified High Resilient (CMHR) foams only may be used in bunk mattresses, certified in accordance with IMO Resolution A.688(17).

## **7.5 INITIAL SURVEYS - HULLS CONSTRUCTED OF GLASS REINFORCED PLASTIC (GRP)**

- 7.5.1** Plans showing the arrangement of construction, details of the method of lay up and the type of resins to be used should be submitted to the MCA in accordance with the guidance contained in [MSIS 27 Chapter 1 Annex 24](#) and meet the construction requirements set out in [MSN 1871](#) and [MGN 628](#) before any construction is commenced. [MGN 407](#) provides guidance on fire testing procedures for wood and composite structures.
- 7.5.2** Vessels of over 15 metres in length having hulls constructed of glass reinforced plastics require the envelope of the hull, superstructure, structural bulkheads, decks and deckhouses, if constructed of glass reinforced plastics, to consist of a main laminate fabricated from a resin of reduced fire hazard or a laminate in which the final reinforcement layer used is a closely woven glass fabric.
- 7.5.3** Where a resin of reduced fire hazard is employed, this should be used throughout the laminate except that such reduction in fire hazard will not be insisted upon for the gel coat where this layer is on the outside of the vessel. Where the laminate is constructed with a woven glass fabric forming the basis of the fire protection, the inner laminate surfaces should be coated with an intumescent composition after structural bonding of the component laminates is completed.
- 7.5.4** The resin of reduced fire hazard may be one accepted by the MCA as supplied by the resin manufacturer or alternatively may be formulated by the inclusion of fire retarding agents by the builder in a conventional resin which should also be of a type accepted by the MCA.
- 7.5.5** Too large an addition of certain fire retarding agents will have an adverse effect upon the mechanical and/or weathering properties of the laminate and the quantities used, where antimony trioxide and chlorinated paraffin wax are

employed, should be limited so that the combined total does not exceed a weight ratio of 20 parts of combined additives to 100 parts of resin.

- 7.5.6 In cases where intumescent coatings are used for fire protection, fillers should not be added except to the gel coat above the operational waterline.
- 7.5.7 Fillers such as pigments, if added, should also be limited so that the total quantity of fillers excluding the fire retarding agents included in the mix does not exceed 10 parts by weight to 100 parts of resin. Any fillers used are to be recommended by the resin manufacturer.
- 7.5.8 Galleys: The structure enclosing the galley should be insulated with non-combustible material; particular attention should be given to the areas in way of galley stoves, uptakes and other sources of heat. Unprotected combustible materials should not be fitted within 300 mm of any exhaust pipe or duct which is liable to become heated.
- 7.5.9 Thermal insulation: Where it is proposed to use organic foams for the insulation of refrigerated compartments or insulated fish holds the requirements of Merchant Shipping Notice [MSN 782](#), as may be amended or superseded, should be taken into account.
- 7.5.10 Machinery spaces: Bulkheads separating machinery spaces from accommodation spaces or control stations, should be insulated with either approved fire insulation materials or constructed of approved non-combustible materials. Insulation should be protected by metal sheathing or other equivalent arrangements against the absorption of oil or water. The vessel's side shell insulation should extend to at least the level of the lowest operational waterline.
- 7.5.11 Control stations: Where they are constructed of GRP the bulkheads and decks enclosing the control stations and corridors serving accommodation spaces, service spaces and control stations should be constructed to meet equivalence of a B-30 standard.
- 7.5.12 Tanks: In a vessel, the hull of which is constructed of GRP, integral tanks of similar construction may be accepted provided they comply with the requirements of the Codes.

## **7.6 INITIAL SURVEYS - HULLS CONSTRUCTED OF WOOD**

- 7.6.1 Detailed plans showing the proposed structural fire protection should be submitted to the Consultant Fishing Vessel Surveyor before construction is commenced. MGN 407 provides guidance on fire testing procedures for wood and composite structures.
- 7.6.2 The following structures in the machinery spaces should be of steel:
- the casing;

- the beams which support that part of the deck forming the crown of the space except that carlings and half-beams may be of hardwood if of substantial construction.
- 7.6.3 In 'Scottish type' wooden fishing vessels where the cabin is usually below deck immediately abaft the machinery space, and entered through a hatch or door from the superstructure, this type of door should be of substantial construction but need not be self-closing.
- 7.6.4 In machinery casings where the height of machinery casings is such that their access doors can be fitted in the sides or ends, such doors should be self-closing but access hatches fitted in the tops of low casings are not required to be self-closing.
- 7.6.5 Bulkheads separating machinery spaces from accommodation or control stations should be either insulated with approved fire insulation materials or constructed of approved non-combustible materials and be capable of meeting a B-15 or "F" standard. Insulating materials should be protected by metal sheathing or equivalent arrangements to prevent the absorption of oil or water.
- 7.6.6 Where an approved non-combustible material is fitted in such a manner as to provide the requisite B-15 standard, care should be taken that such material is not dependent upon combustible material for strength. The MCA may require a sample of any bulkhead designed to comply with a B-15 standard to be subjected to a standard fire test.
- 7.6.7 In galleys:
- Where cooking or heating appliances are fitted in galleys, service spaces or accommodation spaces and adjacent to wood structure, the bulkheads abutting the appliances should be protected with non-combustible material;
  - Such insulating material should be sheathed with metal or other surface material of low flame spread so as to prevent the absorption of oil or oil vapours; and
  - The deck head over galley stoves should be protected with non-combustible materials. Unprotected combustible material should not be fitted within 300 mm of any exhaust pipe or duct which is liable to become heated.
- 7.6.8 Control stations: The deck of a wheelhouse or control station which forms the crown of the machinery space should be constructed of steel.

## **7.7 MEANS OF ESCAPE**

### **7.7.1 GENERAL**

**7.7.1.1** On all vessels of 10m LOA and above, where practicable, emergency escape routes are to be provided from the wheelhouse and sleeping accommodation.

**7.7.1.2** In vessels 10m LOA and over with an enclosed machinery space, at least two means of escape from the engine room should be provided, separated as far apart

as practicable, except that, where the size of the machinery space renders this impracticable, one escape may be fitted, subject to approval.

### 7.7.1.3

It is essential that in all vessels 12m RL and over, there should be provided at least two suitably sited means of escape from all compartments which are occupied by the crew whilst at sea. Where practicable such escapes should be independent of the propelling machinery spaces and galley or other spaces in which the risk from fire, steam etc is comparatively high. In this context a compartment should be taken in general to mean the living and working spaces within watertight or fire resisting boundaries on any one level which are served by intercommunicating passageways. It also includes the wheelhouse, where an opening window with grab handles could be utilised for smaller vessels where another door is not possible. Escape routes by way of stairways, corridors, ladderways, etc, should be so arranged as to provide ready and unimpeded means of escape to the outside of the vessel.

### 7.7.1.4

In the case of a vessel where crew accommodation is situated below the weather deck it is preferable for the two means of escape from compartments between two main bulkheads to be by means of stairways. This may not always be practicable and in such a case, the escape arrangements may be acceptable provided that:

- One of the escapes is by means of a stairway to the deck above and the other is by way of a doorway to an adjacent compartment from where there is a stairway leading to the deck above; or
- One of the escapes is by means of a stairway to the deck above and the other is by an escape hatch to the deck above. It may be necessary in certain instances, having regard to the actual layout of the accommodation, to provide in addition to a stairway, two escape hatches, one port and one starboard so as to cover the whole block of accommodation being considered;
- Where accommodation spaces are arranged in several tiers the surveyor should ensure that although the lowest tier has two means of escape in a vertical direction, in subsequent tiers 'funnelling' of escapes does not occur such that in the higher tiers there is only one means of escape;
- Attention is drawn to the requirement to provide at least one of the means of escape from each main compartment and from each compartment normally occupied by members of the crew so as to provide as far as practicable continuous fire shelter escape route to the embarkation deck(s). In circumstances where it is not practicable to provide a direct stairway system of escape in any section of the vessel an acceptable alternative would be to protect the escape routes used to enable persons to transfer from a stairway enclosure or to exit to the open deck from a corridor by means of 'B' class non-combustible divisions;
- At least two suitably located means of escape should be provided from machinery spaces except where the size or position of the machinery space renders this unreasonable and impracticable; and
- Particular care should be taken in the planning of means of escape. As a general philosophy it is assumed that escapes and escape routes will be



used in the case of explosion, fire or physical damage to the vessel caused by collision. In planning escapes or escape routes consideration need not be given to the above hazards occurring in different parts of the vessel simultaneously. Escapes should be separated as far as practicable having regard to the compartments served.

### **7.7.2 DEAD-END CORRIDORS**

7.7.2.1 Generally two means of escape should be provided at the opposite ends of long passageways, although this may not be possible in isolated cases. Dead-end corridors may be accepted with only one means of escape subject to the satisfaction of the MCA.

### **7.7.3 MESSROOMS AND RECREATION ROOMS**

7.7.3.1 See [MSIS 12](#) Para 15.2.12. Note that a side scuttle of 400mm diameter may be accepted, as per 7.7.14 below.

### **7.7.4 BEDROOMS**

7.7.4.1 See [MSIS 12](#) Para 15.2.11.

### **7.7.5 DOORS**

7.7.5.1 All doors to accommodation spaces should, in general, be of the hinged type. Where from space consideration it is not practicable to provide hinged doors, sliding doors may be permitted provided that they can readily be removed from the rail from either side of the door or that an escape panel is fitted in the door which can be 'kicked out' with the minimum of effort from either side as they are prone to jam in fire or damage situations.

7.7.5.2 Intermediate doors fitted in passageways should not be capable of being locked.

7.7.5.3 In order to eliminate the possibility of persons being inadvertently locked in their cabins, the locking arrangements for cabin doors should be such that the doors can always be unlocked from inside the cabin without the use of a key i.e. an internal 'thumb-lock'.

7.7.5.4 Similarly, any external doors requiring to be locked in port for security reasons, must be capable of being unlocked from the inside without a key.

7.7.5.5 It is generally considered that escape panels in 'B' Class doors are unnecessary. However they may be fitted if an owner requires them. In such cases the panels should be constructed in accordance with any details shown on the approved drawings, provided they do not exceed 410 mm x 410 mm in size. See also 7.7.16 below.

### **7.7.6 ESCAPE HATCHES**

7.7.6.1 Where hatches are used to provide an alternative means of escape from a compartment, they should be of such dimensions that will allow a person wearing a lifejacket to escape. The hatch should not be capable of being locked and should be operable from below and above. The cover to an escape hatch should,

where necessary, be provided with counter-balance arrangements for ease of opening. A steel ladder should be fixed adjacent to each hatch but where this is impracticable, a portable one may be stowed nearby, secured and identified to the satisfaction of the surveyor. The surveyor should ensure that escape hatches are clearly marked with 'tiger stripes' and notices so that they should not be blocked by equipment or stores. Where practicable, physical means, such as siting the hatch on a raised kerb or protecting the hatch by stanchions and rails, should be used to prevent hatches being over-stowed with deck cargo or stores.

### 7.7.7

#### ESCAPE SIDE SCUTTLES OR WINDOWS

##### 7.7.7.1

Opening type side scuttles or windows can with advantage be provided in certain instances to effect an alternative means of escape. Side scuttles provided for escape purposes should be not less than 400 mm in diameter (clear glass) and windows should be of the fully opening type with dimensions compatible for use as an escape.

##### 7.7.7.2

Escape side scuttles or windows should not be allowed at the shipside (or in structures in line with the shipside) in:

- i. positions close to the water-line; or
- ii. positions such that the person escaping will be required to enter the sea; and
- iii. When escape side scuttles or windows are accepted, fixed steel rungs and handgrips where necessary should be provided which lead to an open deck from which ready access to lifeboats or liferafts is available.

### 7.7.8

#### ESCAPE PANELS

##### 7.7.8.1

See [MSIS 12](#) Para 15.2.10.

##### 7.7.8.2

Escape panels should be marked with the words 'ESCAPE PANEL - KICK OUT' in white letters on a green background.

## 7.8

### SPACE HEATERS AND COOKING STOVES

#### 7.8.1

In addition to the Code requirements, reference should be made to the following:

- i. Electrical equipment must comply with BS 8450:2006 Code of Practice for Installation of Electrical and Electronic Equipment in Ships as appropriate (replaces Section 16 of the IEE Regulations 6th Edition);
- ii. Vessels under 24 m may have heating and cooking equipment supplied with LPG, Butane or Propane. Heating of accommodation by this method is not permitted on vessels over 24 m, and vessels of **12m RL and over** must be fitted with a flue. Any LPG installations should comply with the requirements in [MGN 312](#) - "Use of liquid petroleum gas (LPG) and diesel fuelled appliances on fishing vessels" and be installed by a suitably qualified Gas and/or Marine Engineer (guidance may be found in BS EN (ISO) 10239);
- iii. Closed flame diesel heaters are acceptable subject to meeting the requirements stipulated in [MGN 312](#).

#### 7.8.2

Many of the dangers from domestic LPG installations are common to oil-fired devices. MSN 1136 gives guidance on minimising these hazards. Galleys

equipped with oil-fired cooking ranges should comply with the following requirements:

- i. The galley should be properly ventilated;
- ii. The oil fuel tanks should be placed outside the galley, and the supply of oil to the burners should be capable of being controlled from outside. The control position should be such that it will not be likely to be rendered inaccessible by a fire in the galley;
- iii. It is required that the fuel supply to an oil-fired cooking range is automatically shut-off in the event of a fire or if the combustion air supply fails due to failure of the fan or any other reason. This arrangement is in addition to the remote control required above;
- iv. The tanks should be fitted with air pipes leading to the open air, in such a position that there will be no danger of fire or explosion from the emergence of oil vapour during filling of a tank; and
- v. Efficient means for filling and sounding the tanks and for preventing over-filling.

## **7.9 STORAGE OF FLAMMABLE LIQUIDS, TOXIC GASES AND COMPRESSED GASES**

### **7.9.1 ARRANGEMENTS FOR OXYGEN AND FUEL GAS (ACETYLENE ETC)**

- 7.9.1.1 Vessels under 24 m should not normally carry oxy-acetylene equipment onboard. Where this does occur, the gas cylinders should be securely stowed on the open deck and only used by trained persons.
- 7.9.1.2 Surveyors should ensure the crew are aware of the dangers of fire and explosion, as indicated in [MGN 310](#) "Fishing Vessels: Risk of Fire and Explosion from Gas Welding and Burning".
- 7.9.1.3 On larger vessels, permanent piping systems for oxygen and fuel gas may be accepted where they conform to British Standard or equivalent or to the requirements of a classification society. See also [MSIS 12](#) Para 10.5.
- 7.9.1.4 Fuel gas pipes should be made of steel. Oxygen pipes should be made of a material suitable for the gas velocity and pressure to be used.
- 7.9.1.5 Oxygen and fuel gas cylinders should be stowed in separate, well ventilated steel compartments that are protected from extremes of temperature, and open out to the open deck. Any electrical fittings in these compartments should be certified safe (Ex) type, and permanent 'NO SMOKING' and "NO NAKED LIGHTS" signs should be prominently displayed. Empty and full cylinders should be segregated and marked accordingly.
- 7.9.1.6 Cylinders in use should only be operated with approved pressure regulators and blow-back prevention devices.

**7.9.2 PAINT LOCKER**

7.9.2.1 In vessels over 15 m length, all flammable liquids, including paint, should be stored in a separate compartment, or paint locker, accessed from deck and gas tight from other compartments. Ventilation should be separate from any other system, and electrical fittings, if fitted, should be certified safe (Ex) suitable for flammable atmospheres. Compartments with over 2 m<sup>2</sup> floor space should be fitted with a fixed extinguishing system, usually water spray, operated from outside.

**7.9.3 COMPRESSED GAS CYLINDERS**

7.9.3.1 Any compressed gas cylinders on the vessel should be kept upright at all times and properly secured in position. The arrangements for securing the cylinders should be capable of quick and easy release so they can be readily removed in an emergency such as a fire.

7.9.3.2 All cylinders should be clearly identified with details of their contents and correctly colour coded.

7.9.3.3 Cylinders not in use should have protective caps screwed over the valves. The valves should be closed on any empty cylinders.

7.9.3.4 Other equipment should not be stowed in compartments provided for gas cylinders.

7.9.3.5 The ventilation system serving a space in which gas cylinders are stored should not serve any other space and should be capable of freeing the space of any gas which may leak from the cylinders. Any ducting of such a system which passes through any other space should be of steel and of gas tight construction.

**7.10 AUTOMATIC FIRE DETECTION SYSTEMS**

7.10.1 Guidance now contained in [Chapter 8: Fire Safety – Fire Appliances and Fire Detection](#)

**DOCUMENT AMENDMENT HISTORY**

Version Number	Status / Change	Date	Author Reviewer	Content Approver	Next Review Date/Expiry Date
06.20	<ul style="list-style-type: none"> <li>Amendments to reflect publication of MGN628 and MGN629</li> </ul>	21/6/2020	D Fenner	G Stone	01/06/2023
09.21	<ul style="list-style-type: none"> <li>Amendments to reflect publication of MSN1871 Amendment No.2</li> </ul>	31/8/2021	D Fenner	G Stone	01/09/2023
04.22	<ul style="list-style-type: none"> <li>Amendments to text to clarify suitably qualified personnel</li> <li>Amendments to numbering</li> </ul>	09/03/2022	D Fenner	G Stone	01/03/2024
08.22	<ul style="list-style-type: none"> <li>Amended definition of Fit for Purpose</li> </ul>	01/07/2022	D Fenner	G Stone	01/07/2024