Part D – Escape

Regulation 13 - Means of Escape

1. Purpose

The purpose of this regulation is to provide means of escape so that persons onboard can safely and swiftly escape to the lifeboat and liferaft embarkation deck. For this purpose, the following functional requirements shall be met:

1.1 safe escape routes shall be provided;

1.2 escape routes shall be maintained in a safe condition, clear of obstacles; and

1.3 additional aids for escape shall be provided as necessary to ensure accessibility, clear marking, and adequate design for emergency situations.

2. General requirements

2.1 Unless expressly provided otherwise in this regulation, at least two widely separated and ready means of escape shall be provided from all spaces or groups of spaces.

2.2 Lifts shall not be considered as forming one of the means of escape as required by this regulation.

3. Means of escape from control stations, accommodation spaces and service spaces

3.1 General requirements

3.1.1 Stairways and ladders shall be so arranged as to provide ready means of escape to the lifeboat and liferaft embarkation deck from passenger and crew accommodation spaces and from spaces in which the crew is normally employed, other than machinery spaces.

3.1.2 Unless expressly provided otherwise in this regulation, a corridor, lobby, or part of a corridor from which there is only one route of escape shall be prohibited. Dead-end corridors used in service areas which are necessary for the practical utility of the ship, such as fuel oil stations and athwartship supply corridors, shall be permitted, provided such dead-end corridors are separated from crew accommodation areas and are inaccessible from passenger accommodation areas. Also, a part of a corridor that has a depth not exceeding its width is considered a recess or local extension and is permitted.

3.1.3 All stairways in accommodation and service spaces and control stations shall be of steel frame construction except where the Administration sanctions the use of other equivalent material.

3.1.4 If a radiotelegraph station has no direct access to the open deck, two means of escape from, or access to, the station shall be provided, one of which may be a porthole or window of sufficient size or other means to the satisfaction of the Administration.

3.1.5 Doors in escape routes shall, in general, open in way of the direction of escape, except that:

3.1.5.1 individual cabin doors may open into the cabins in order to avoid injury to persons in the corridor when the door is opened; and

3.1.5.2 doors in vertical emergency escape trunks may open out of the trunk in order to permit the trunk to be used both for escape and for access.

3.2 Means of escape in passenger ships

3.2.1 Escape from spaces below the bulkhead deck

3.2.1.1 Below the bulkhead deck, two means of escape, at least one of which shall be independent of watertight doors, shall be provided from each watertight compartment or similarly restricted space or group of spaces. Exceptionally, the Administration may dispense with one of the means of escape for crew spaces that are entered only occasionally, if the required escape route is independent of watertight doors.

3.2.1.2 Where the Administration has granted dispensation under the provisions of paragraph 3.2.1.1, this sole means of escape shall provide safe escape. However, stairways shall not be less than 800 mm in clear width with handrails on both sides.

3.2.2 Escape from spaces above the bulkhead deck

Above the bulkhead deck there shall be at least two means of escape from each main vertical zone or similarly restricted space or group of spaces, at least one of which shall give access to a stairway forming a vertical escape.

3.2.3 Direct access to stairway enclosures

Stairway enclosures in accommodation and service spaces shall have direct access from the corridors and be of a sufficient area to prevent congestion, having in view the number of persons likely to use them in an emergency. Within the perimeter of such stairway enclosures, only public toilets, lockers of non-combustible material providing storage for non-hazardous safety equipment and open information counters are permitted. Only public spaces, corridors, lifts, public toilets, special category spaces and open ro-ro spaces to which any passengers carried can have access, other escape stairways required by paragraph 3.2.4.1 and external areas are permitted to have direct access to these stairway enclosures. Small corridors or "lobbies" used to separate an enclosed stairway from galleys or main laundries may have direct access to the stairway provided they have a minimum deck area of 4.5 m^2, a width of no less than 900 mm and contain a fire hose station.

3.2.4 Details of means of escape

3.2.4.1 At least one of the means of escape required by paragraphs 3.2.1.1 and 3.2.2 shall consist of a readily accessible enclosed stairway, which shall provide continuous fire shelter from the level of its origin to the appropriate lifeboat and liferaft embarkation decks, or to the uppermost weather deck if the embarkation deck does not extend to the main vertical zone being considered. In the latter case, direct access to the embarkation deck by way of external open stairways and passageways shall be provided and shall have emergency lighting in accordance with regulation III/11.5 and slip free surfaces underfoot. Boundaries facing external open stairways and passageways forming part of an escape route and boundaries

in such a position that their failure during a fire would impede escape to the embarkation deck shall have fire integrity, including insulation values, in accordance with tables 9.1 to 9.4, as appropriate.

3.2.4.2 Protection of access from the stairway enclosures to the lifeboat and liferaft embarkation areas shall be provided either directly or through protected internal routes which have fire integrity and insulation values for stairway enclosures as determined by tables 9.1 to 9.4, as appropriate.

3.2.4.3 Stairways serving only a space and a balcony in that space shall not be considered as forming one of the required means of escape.

3.2.4.4 Each level within an atrium shall have two means of escape, one of which shall give direct access to an enclosed vertical means of escape meeting the requirements of paragraph 3.2.4.1.

3.2.4.5 The widths, number and continuity of escapes shall be in accordance with the requirements in the Fire Safety Systems Code.

3.2.5 Marking of escape routes

3.2.5.1 In addition to the emergency lighting required by regulations II-1/42 and III/11.5, the means of escape, including stairways and exits, shall be marked by lighting or photoluminescent strip indicators placed not more than 300 mm above the deck at all points of the escape route, including angles and intersections. The marking must enable passengers to identify the routes of escape and readily identify the escape exits. If electric illumination is used, it shall be supplied by the emergency source of power and it shall be so arranged that the failure of any single light or cut in a lighting strip will not result in the marking being ineffective. Additionally, escape route signs and fire equipment location markings shall be of photoluminescent material or marked by lighting. The Administration shall ensure that such lighting or photoluminescent equipment has been evaluated, tested and applied in accordance with the Fire Safety Systems Code.

3.2.5.2 In passenger ships carrying more than 36 passengers, the requirements of the paragraph 3.2.5.1 shall also apply to the crew accommodation areas.

3.2.6 Normally locked doors that form part of an escape route

3.2.6.1 Cabin and stateroom doors shall not require keys to unlock them from inside the room. Neither shall there be any doors along any designated escape route which require keys to unlock them when moving in the direction of escape.

3.2.6.2 Escape doors from public spaces that are normally latched shall be fitted with a means of quick release. Such means shall consist of a door-latching mechanism incorporating a device that releases the latch upon the application of a force in the direction of escape flow. Quick release mechanisms shall be designed and installed to the satisfaction of the Administration and, in particular:

3.2.6.2.1 consist of bars or panels, the actuating portion of which extends across at least one half of the width of the door leaf, at least 760 mm and not more than 1,120 mm above the deck;

3.2.6.2.2 cause the latch to release when a force not exceeding 67 N is applied; and

3.2.6.2.3 not be equipped with any locking device, set screw or other arrangement that prevents the release of the latch when pressure is applied to the releasing device.

3.3 Means of escape in cargo ships

3.3.1 General

At all levels of accommodation there shall be provided at least two widely separated means of escape from each restricted space or group of spaces.

3.3.2 Escape from spaces below the lowest open deck

Below the lowest open deck the main means of escape shall be a stairway and the second escape may be a trunk or a stairway.

3.3.3 Escape from spaces above the lowest open deck

Above the lowest open deck the means of escape shall be stairways or doors to an open deck or a combination thereof.

3.3.4 Dead-end corridors

No dead-end corridors having a length of more than 7 m shall be accepted.

3.3.5 Width and continuity of escape routes

The width, number and continuity of escape routes shall be in accordance with the requirements in the Fire Safety Systems Code.

3.3.6 Dispensation from two means of escape

Exceptionally, the Administration may dispense with one of the means of escape, for crew spaces that are entered only occasionally, if the required escape route is independent of watertight doors.

3.4 Emergency escape breathing devices*

* Refer to the Guidelines for the performance, location, use and care of emergency escape breathing devices (MSC/Circ.849).

3.4.1 Emergency escape breathing devices shall comply with the Fire Safety Systems Code. Spare emergency escape breathing devices shall be kept onboard.

3.4.2 All ships shall carry at least two emergency escape breathing devices within accommodation spaces.

3.4.3 In all passenger ships, at least two emergency escape breathing devices shall be carried in each main vertical zone.

3.4.4 In all passenger ships carrying more than 36 passengers, two emergency escape breathing devices, in addition to those required in paragraph 3.4.3 above, shall be carried in each main vertical zone.

3.4.5 However, paragraphs 3.4.3 and 3.4.4 do not apply to stairway enclosures which constitute individual main vertical zones and to the main vertical zones in the fore or aft end of a ship which do not contain spaces of categories (6), (7), (8) or (12) as defined in regulation 9.2.2.3.

4. Means of escape from machinery spaces

4.1 Means of escape on passenger ships

Means of escape from each machinery space in passenger ships shall comply with the following provisions.

4.1.1 Escape from spaces below the bulkhead deck

Where the space is below the bulkhead deck, the two means of escape shall consist of either:

4.1.1.1 two sets of steel ladders, as widely separated as possible, leading to doors in the upper part of the space, similarly separated and from which access is provided to the appropriate lifeboat and liferaft embarkation decks. One of these ladders shall be located within a protected enclosure that satisfies regulation 9.2.2.3, category (2), or regulation 9.2.2.4, category (4), as appropriate, from the lower part of the space it serves to a safe position outside the space. Self-closing fire doors of the same fire integrity standards shall be fitted in the enclosure. The ladder shall be fixed in such a way that heat is not transferred into the enclosure through non-insulated fixing points. The protected enclosure shall have minimum internal dimensions of at least 800 mm x 800 mm, and shall have emergency lighting provisions; or

4.1.1.2 one steel ladder leading to a door in the upper part of the space from which access is provided to the embarkation deck and additionally, in the lower part of the space and in a position well separated from the ladder referred to, a steel door capable of being operated from each side and which provides access to a safe escape route from the lower part of the space to the embarkation deck.

4.1.2 Escape from spaces above the bulkhead deck

Where the space is above the bulkhead deck, the two means of escape shall be as widely separated as possible and the doors leading from such means of escape shall be in a position from which access is provided to the appropriate lifeboat and liferaft embarkation decks. Where such means of escape require the use of ladders, these shall be of steel.

4.1.3 Dispensation from two means of escape

In a ship of less than 1,000 gross tonnage, the Administration may dispense with one of the means of escape, due regard being paid to the width and disposition of the upper part of the space. In a ship of 1,000 gross tonnage and above, the Administration may dispense with one means of escape from any such space, including a normally unattended auxiliary machinery space, so long as either a door or a steel ladder provides a safe escape route to the embarkation deck, due regard being paid to the nature and location of the space and whether persons are normally employed in that space. In the steering gear space, a second means of escape shall be provided when the emergency steering position is located in that space unless there is direct access to the open deck.

4.1.4 Escape from machinery control rooms

Two means of escape shall be provided from a machinery control room located within a machinery space, at least one of which will provide continuous fire shelter to a safe position outside the machinery space.

4.2 Means of escape on cargo ships

Means of escape from each machinery space in cargo ships shall comply with the following provisions.

4.2.1 Escape from machinery spaces of category A

Except as provided in paragraph 4.2.2, two means of escape shall be provided from each machinery space of category A. In particular, one of the following provisions shall be complied with:

4.2.1.1 two sets of steel ladders, as widely separated as possible, leading to doors in the upper part of the space, similarly separated and from which access is provided to the open deck. One of these ladders shall be located within a protected enclosure that satisfies regulation 9.2.3.3, category (4), from the lower part of the space it serves to a safe position outside the space. Self-closing fire doors of the same fire integrity standards shall be fitted in the enclosure. The ladder shall be fixed in such a way that heat is not transferred into the enclosure through non-insulated fixing points. The enclosure shall have minimum internal dimensions of at least 800 mm x 800 mm, and shall have emergency lighting provisions; or

4.2.1.2 one steel ladder leading to a door in the upper part of the space from which access is provided to the open deck and, additionally, in the lower part of the space and in a position well separated from the ladder referred to, a steel door capable of being operated from each side and which provides access to a safe escape route from the lower part of the space to the open deck.

4.2.2 Dispensation from two means of escape

In a ship of less than 1,000 gross tonnage, the Administration may dispense with one of the means of escape required under paragraph 4.2.1, due regard being paid to the dimension and disposition of the upper part of the space. In addition, the means of escape from machinery spaces of category A need not comply with the requirement for an enclosed fire shelter listed in paragraph 4.2.1.1. In the steering gear space, a second means of escape shall be provided when the emergency steering position is located in that space unless there is direct access to the open deck.

4.2.3 Escape from machinery spaces other than those of category A

From machinery spaces other than those of category A, two escape routes shall be provided except that a single escape route may be accepted for spaces that are entered only occasionally, and for spaces where the maximum travel distance to the door is 5 m or less.

4.3 Emergency escape breathing devices

4.3.1 On all ships, within the machinery spaces, emergency escape breathing devices shall be situated ready for use at easily visible places, which can be reached quickly and easily at any time in the event of fire. The location of emergency escape breathing devices shall take into account the layout of the machinery space and the number of persons normally working in the spaces.*

* Refer to the Guidelines for the performance, location, use and care of emergency escape breathing devices (MSC/Circ.849).

4.3.2 The number and location of these devices shall be indicated in the fire control plan required in regulation 15.2.4.

4.3.3 Emergency escape breathing devices shall comply with the Fire Safety Systems Code.

5. Means of escape on passenger ships from special category and open ro-ro spaces to which any passengers carried can have access

5.1 In special category and open ro-ro spaces to which any passengers carried can have access, the number and locations of the means of escape both below and above the bulkhead deck shall be to the satisfaction of the Administration and, in general, the safety of access to the embarkation deck shall be at least equivalent to that provided for under paragraphs 3.2.1.1, 3.2.2, 3.2.4.1 and 3.2.4.2. Such spaces shall be provided with designated walkways to the means of escape with a breadth of at least 600 mm. The parking arrangements for the vehicles shall maintain the walkways clear at all times.

5.2 One of the escape routes from the machinery spaces where the crew is normally employed shall avoid direct access to any special category space.

6. Means of escape from ro-ro spaces

At least two means of escape shall be provided in ro-ro spaces where the crew are normally employed. The escape routes shall provide a safe escape to the lifeboat and liferaft embarkation decks and shall be located at the fore and aft ends of the space.

7. Additional requirements for ro-ro passenger ships

7.1 General

7.1.1 Escape routes shall be provided from every normally occupied space on the ship to an assembly station. These escape routes shall be arranged so as to provide the most direct route possible to the assembly station,* and shall be marked with symbols based on the guidelines developed by the Organization.†

7.1.2 The escape route from cabins to stairway enclosures shall be as direct as possible, with a minimum number of changes in direction. It shall not be necessary to cross from one side of the ship to the other to reach an escape route. It shall not be necessary to climb more than two decks up or down in order to reach an assembly station or open deck from any passenger space.

* Refer to the Indication of the assembly stations in passenger ships (MSC/Circ.777)
† Refer to Symbols related to life-saving appliances and arrangements adopted by the Organization by resolution A.760(18).

7.1.3 External routes shall be provided from open decks, as referred to in paragraph 7.1.2, to the survival craft embarkation stations.

7.1.4 Where enclosed spaces adjoin an open deck, openings from the enclosed space to the open deck shall, where practicable, be capable of being used as an emergency exit.

7.1.5 Escape routes shall not be obstructed by furniture and other obstructions. With the exception of tables and chairs which may be cleared to provide open space, cabinets and other heavy furnishings in public spaces and along escape routes shall be secured in place to prevent shifting if the ship rolls or lists. Floor coverings shall also be secured in place. When the ship is under way, escape routes shall be kept clear of obstructions such as cleaning carts, bedding, luggage and boxes of goods.

7.2 Instruction for safe escape

7.2.1 Decks shall be sequentially numbered, starting with "1" at the tank top or lowest deck. The numbers shall be prominently displayed at stair landings and lift lobbies. Decks may also be named, but the deck number shall always be displayed with the name.

7.2.2 Simple "mimic" plans showing the "you are here" position and escape routes marked by arrows shall be prominently displayed on the inside of each cabin door and in public spaces. The plan shall show the directions of escape and shall be properly oriented in relation to its position on the ship.

7.3 Strength of handrails and corridors

7.3.1 Handrails or other handholds shall be provided in corridors along the entire escape route so that a firm handhold is available at every step of the way, where possible, to the assembly stations and embarkation stations. Such handrails shall be provided on both sides of longitudinal corridors more than 1.8 m in width and transverse corridors more than 1 m in width. Particular attention shall be paid to the need to be able to cross lobbies, atriums and other large open spaces along escape routes. Handrails and other handholds shall be of such strength as to withstand a distributed horizontal load of 750 N/m applied in the direction of the centre of the corridor or space, and a distributed vertical load of 750 N/m applied in the downward direction. The two loads need not be applied simultaneously.

7.3.2 The lowest 0.5 m of bulkheads and other partitions forming vertical divisions along escape routes shall be able to sustain a load of 750 N/m to allow them to be used as walking surfaces from the side of the escape route with the ship at large angles of heel.

7.4 Evacuation analysis**

Escape routes shall be evaluated by an evacuation analysis early in the design process. The analysis shall be used to identify and eliminate, as far as practicable, congestion which may develop during an abandonment, due to normal movement of passengers and crew along escape routes, including the possibility that crew may need to move along these routes in a direction opposite to the movement of passengers. In addition, the analysis shall be used to demonstrate that escape arrangements are sufficiently flexible to provide for the possibility that certain escape routes, assembly stations, embarkation stations or survival craft may not be available as a result of a casualty.

* Refer to interim guidelines for Evacuation Analysis for New and Existing Passenger Ships (MSC/CIRC 1033)

** Refer to the interim Guidelines for a simplified evacuation analysis of ro-ro passenger ships (MSC/Circ.909).

MCA Guidance

G1 Escape panels in doors

G1.1 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 410mm x 410mm in size. A ventilation opening, when fitted, should be incorporated in the escape panel. Where no details of an escape panel are given the door manufacturer should be requested to submit details of the construction to MCA Headquarters for consideration before use.

G1.2 Escape panels should only be capable of being operated from that side of the door from which a person needs to escape and should be of such a design as to preserve the integrity and insulation standard of the door and prevent any unlawful entry into a space.

G1.3 Escape panels should be marked with the words 'ESCAPE PANEL - KICK OUT' in white letters on a green background.

G2 Locks in doors

G2.1 Every 'B' Class door fitted in a cabin bulkhead should be capable, when locked, of being opened manually from the cabin side other than by means of the key or key card.

G2.2 Any 'B' Class door, other than a cabin door, which is fitted to an opening forming part of an escape route should not be capable of being locked shut, except that when such a door is required to be locked shut by the owner for security reasons keys should be provided on each side of the door in glass fronted boxes fitted close to the door.

G2.3 Alternatively a door which is unlocked in the escape direction may be 'access controlled' subject to suitable safeguards. Digital locks for which the access code is known to appropriate crew members, may be accepted on such doors. (See also specific guidance G13.11 on "doors in crew accommodation").

G3 General requirements - applicable to all ships

G3.1 The general requirements apply to the escape arrangements of all ships - passenger ships, cargo ships and tankers - except where specifically indicated otherwise.

G4 Stairways and ladderways

G4.1 The width is to be measured on the tread within the sides or between the handrails, whichever is the least.

G4.2 Stairways should not extend in a single flight more than one 'tweendeck or a vertical distance of 3.5m whichever is the least. Stairways in adjacent 'tweendecks within the same enclosure should, wherever possible, be offset if sloping in the same direction or slope in different directions.

G4.3 In either case, the stairways should be separated by a landing having its shorter dimension not less than the width of the wider stairway. However when it is only possible to arrange such stairways to slope in the same direction without being offset, they should be separated by a landing having a length not less than 2m.

G4.4 Curved stairways should be such that they do not present a hazard to passengers and crew. It should be borne in mind that such stairways may be used in an emergency situation by both elderly and very young passengers (see also guidance G13.15.2 at the end of paragraph 3).

G4.5 Nosings on treads should be kept to minimum dimensions in order to reduce the risk of passengers and crew tripping over them and should be of the same sectional shape on all treads of a stairway.

G4.6 Stairways and ladderways should be fitted on each side with an efficient handrail, which in the case of stairways should be continued unbroken from the slope of the stairway round each landing to the entrance to the stairway enclosure or connected to the handrails in the corridor whenever the Regulations permit a stairway to be open to the corridor.

G4.7 Stairways and ladderways should, as far as possible, be pitched fore and aft, not athwartships, and should normally be inclined at not less than 45º to the vertical.

G4.8 In general the rise of each step should be kept constant to facilitate easy movement up (or down) the stairway, especially in an emergency situation.

G5 Corridors and doorways

G5.1 Corridors and doorways providing access to and from stairways or open decks should be of sufficient width to prevent congestion and, in the case of those serving stairways, should not be less than the width of the stairways.

G5.2 Handrails should be fitted in corridors at an approximate height of 1000mm above the deck.

G5.3 The width of a corridor should be measured between handrails or the handrail and the opposite bulkhead whichever is applicable.

G6 Escalators

G6.1 Escalators may be treated as stationary stairways for the purpose of this Regulation. (In such cases the surveyor should ensure that adequate deck area is provided in the enclosure at each end of the escalator in order to avoid any congestion. In addition the doors in the enclosure bulkheads should be wide enough to permit passengers to disperse quickly. Due regard should be paid to the design and positioning of the controls so as to reduce the risk of their unauthorised use. The emergency stop controls should however be in positions readily accessible from the escalator).

G7 Hatches

G7.1 Where hatches are provided as the second means of escape for crew from accommodation spaces, the hatches should be of such dimensions as will allow a person to escape wearing a lifejacket.

G7.2 Any hatch provided for escape from crew accommodation or working spaces should not be capable of being locked and should be operable from below and above. It is preferable for such a hatch to be provided with a counter-balance weight for ease of opening. Access to the hatch should be by means of a fixed steel ladder.

G7.3 The surveyor should ensure that escape hatches are so sited that they cannot be overstowed with deck cargo or stores or, in the case of spaces below a special category space

or Ro-Ro cargo space, that vehicles cannot be parked over them or prevent them from being opened fully. In some cases it may be necessary to site the hatches on raised kerbs or be protected by substantial stanchions and rails. In no case should painted lines be accepted as the means of protecting such hatches.

G7.4 When the hatches are fitted in 'A' Class or 'B' Class decks, their construction should be such that the integrity and insulation standards of the decks are not impaired.*

G8 Escape panels

G8.1 In certain instances, 'escape panels' may be used with advantage to provide an alternative means of escape. However, in no case should an escape route incorporate more than one escape panel.

G8.2 An 'escape panel' should be fitted so that it can be kicked-out with the minimum of effort and should be clearly marked to indicate its purpose. Where an escape panel is utilised to provide an escape to another compartment, the surveyor should ensure that the door to that compartment opens onto a corridor and is capable of being opened from inside at all times.

G8.3 Escape panels should not be fitted in any escape route providing access for passengers to the muster stations or lifeboat, liferaft and marine escape system embarkation positions.

G8.4 Escape panels should not be fitted in 'A' Class bulkheads or doors and when they are fitted in 'B' Class bulkheads or doors their construction should be such that the integrity and insulation standards of the bulkheads and doors are not impaired.

G9 Sleeping rooms in crew accommodation

G9.1 It is necessary to provide an emergency means of escape from sleeping rooms where access to such a sleeping room is by way of a dayroom, there being no direct access by means of a door to the sleeping room from a corridor. Ideally the crew accommodation should be designed so that a sleeping room is so positioned that an emergency escape therefrom is not required. However, where there is a need to provide an emergency escape from a sleeping room, this should be achieved by fitting a clearly marked escape panel to an adjacent room or corridor as indicated in the previous paragraphs on "escape panels" or, where this is not possible, by an escape window or sidescuttle as indicated in guidance G13.14 to paragraph 3.

G9.2 Where a dayroom is fitted with a smoke detector as part of an approved 'fixed fire detection and fire alarm system' a second means of escape will not be required.

G10 Crew messrooms, recreation rooms etc.

G10.1 When messrooms, recreation rooms, cinemas, television rooms and similar communal spaces are provided to accommodate more than 15 crew members at any one time, such spaces in general should have two doors to the adjacent corridor. In cases where this is not possible, in addition to the provision of a door to the corridor, a door to the open deck should be provided, or if this is also not possible, an escape window or sidescuttle may be accepted as indicated in guidance G13.14 to paragraph 3.

G11 Doors in crew accommodation

G11.1 In general, all doors which are not type approved should be of the hinged type. Where it is not practicable to provide a hinged door, a sliding door may be accepted provided that in

the case of a 'C' Class door it can be readily removed from its rails from each side of the door or an escape panel is fitted in the sliding door.

G11.2 Doors in an escape route should not normally be locked closed. However, doors which give access to 'sensitive areas' may be locked for security purposes, provided the surveyor is satisfied that the escape routes will remain viable.

G12 Construction and insulation

G12.1 The stiles, treads, risers and, if fitted, backing plates of stairways should be constructed of steel except that they may be constructed of aluminium alloy, suitably insulated, when the structure is of aluminium alloy. Stairway enclosures constructed of steel which are required by the tables in regulation 9 to be insulated, may be insulated on either side but when the enclosures are insulated on the inside, measures should be taken to prevent heat transmission through the divisions in way of decks, landings etc.

G13 Public rooms used for concerts etc.

G13.1 When a public room in a passenger ship (any class) is to be used for concerts, cinema shows etc., and lighting is to be subdued, the illuminated signs marking the exits should be in white lettering approx. 180mm high on a green background. Each door which does not afford a safe escape from the space should be provided with an illuminated sign indicating 'NO EXIT' in white lettering approx. 180mm high on a red background.

G14 Escape windows and sidescuttles

G14.1 Where the second means of escape from a space such as a radio office is provided by an opening window or sidescuttle, the window should be of the fully opening type of suitable dimensions and the sidescuttle should be not less than 450mm in diameter. When such a window or sidescuttle is locked by cone nuts to prevent unauthorised opening e.g. in lieu of mosquito protection in crew spaces on air conditioned ships, a special key should be provided in a glass-fronted box adjacent to the window or sidescuttle.

G15 Requirements applicable to passenger ships

The following applies specifically to passenger ships and are additional to the general requirements for all ships.

G15.1 Widths of stairways and ladderways

G15.1.1 The minimum aggregate width of stairways and ladderways, by which passengers and crew are specifically routed to the assembly stations and/or lifeboat, liferaft and marine escape system embarkation positions, is to be determined as indicated in Chapter 13 of the Fire Safety Systems Code.

G15.2 The carriage of elderly and disabled passengers

G15.2.1 Surveyors should ensure that shipowners and shipbuilders are conversant with the contents of MGN 31(M) and the IMO publication MSC/Circ 735 of June 1996 entitled; 'Recommendation on the Design and Operation of Passenger Ships to Respond to Elderly and Disabled Persons needs'.

G15.3 Continuous fire shelters

G15.3.1 Where a stairway providing continuous fire shelter has no direct access to the lifeboat, liferaft and marine escape system embarkation decks, the corridors between the stairway and the decks should be assumed to be part of the stairway enclosure with its division having the appropriate 'A' Class standards accordingly. See also paragraph on corridor and doorways in the guidance to regulation 9.2.

G15.4 Machinery space escapes

G15.4.1 The shelter should extend from the floor plate level at which there is direct access into a space, other than a special category space, or Ro-Ro cargo space, which provides a safe escape route to the embarkation deck.

G15.4.2 The protected enclosure, referred to in paragraphs 4.1.1.1 and 4.2.1.1, should be of sufficient cross sectional dimensions (but not less than the 800mm x 800mm) to provide unrestricted access within its height and should not be used for pipes, cables, ducts etc. except for electric cables serving light fittings within the shelter.

G15.4.3 The cross sectional dimensions of the protected enclosure should be increased in way of each opening in order to provide a landing within the shelter and permit the door to open without affecting a person who may be climbing the ladder.

G15.4.4 An opening into the protected enclosure should be provided at floor plate level and at each flat or grating level within the height of the protected enclosure except that such an opening need not be provided at any flat or grating level at which there is a door in a boundary of the machinery space which provides a safe escape route to the embarkation deck.

G15.4.5 Each opening in the protected enclosure should be fitted with a self-closing 'A' Class door of the same 'A' Class standard as the part of the shelter in which it is fitted. Each door should open into the protected enclosure.

G15.4.6 A control room situated within a machinery space should be provided with a means of escape which does not entail entering the machinery space. This may be achieved by one of the following:

G15.4.6.1 direct access into the protected enclosure referred to in paragraphs 4.1.1.1 and 4.2.1.1; or

G15.4.6.2 direct access into an adjacent space which provides a safe escape route to the embarkation deck.

G15.4.7 When a machinery space is recessed into or under an adjacent space and neither of the two means of escape referred to in paragraph 4.1.1 or 4.2.1 is situated in the recess, an additional means of escape may be required to be provided from the recess. This will depend on the dimensions of the recess, the distance to the nearest escape in the main part of the machinery space and its accessibility and the location of items of machinery which may present a fire hazard.

G15.5 Spaces in which gas cylinders are stored

G15.5.1 A space in which gas cylinders are stored should be located preferably on an open deck or, where this is not practicable, in a 'tweendeck immediately below an open deck. Any entrance to such a space should be from the open deck and be independent of the protected space or any other space. Every access door should open outwards.

G15.5.2 Where such a space is located below an open deck, the access into the space should be by a companion and sloping stairway. Access in such a case should not be by means of a hatch and vertical ladder which are not considered suitable for rapid evacuation in the event of an accidental discharge of gas into the space. See guidance to regulation 9.7 for the ventilation of such spaces.

G15.6 Low location lighting

G15.6.1 Proposals for compliance with the requirements for 'low location lighting' in escape routes should be presented on a plan drawn to a scale of not less than 1:100. This should show the layout and type (photo luminescent or electrically powered) of low location lighting and also the position of any symbols incorporated in the system. Reference should be made to guidelines on evaluation, testing and application of low location lighting on passenger ships adopted by the Organization by resolution A.752(18). This recommends luminance testing of low location lighting systems once in 5 years: such periodic testing is particularly relevant to unpowered systems.

G15.7 Marking and illuminating exits and escape routes

G15.7.1 Requirements relating to the marking and illuminating of exits and escape routes are given in paragraph 3.2.5. When considering those requirements the contents of the Merchant Shipping (Emergency Information for Passengers) Regulations 1990, should be observed.

G16 Requirements applicable to cargo ships and tankers

The following applies to cargo ships and tankers and are additional to the general requirements for all ships.

G16.1 Accommodation below the weather deck

G16.1.1 The two means of escape from each group of accommodation spaces situated between main bulkheads below the weather deck should be stairways as widely separated as possible. One stairway should provide direct access to the embarkation deck or higher deck and the other stairway should lead to the deck over or a higher deck which provides access to the embarkation deck by means of internal stairways and/or doors in the boundaries of the deckhouses and external ladders. However, if this is not practicable, the stairway which leads to the deck over or higher deck may be replaced by a trunked vertical ladder which provides the same degree of access. (See also the Instructions to Surveyors on the application of the Merchant Shipping (Crew Accommodation) Regulations 1997, - paragraph 2.7 refers).

G16.1.2 In certain circumstances, depending on the layout of the spaces under consideration and the position of the stairway, it may be necessary to provide two trunked vertical ladders, one port and one starboard, in order to provide adequate means of escape from the group of spaces.

G16.2 Accommodation above the weather deck

G16.2.1 The two means of escape from each group of accommodation spaces situated above the weather deck should be stairways as widely separated as possible. One stairway should provide direct access to the embarkation deck or higher deck and the other stairway should lead to the deck over or higher deck which provides access to the embarkation deck except that this stairway need not be fitted if there is at least one door from the corridor serving the group of spaces in each side of the deckhouse which provides access to the embarkation deck. The two doors and the stairway providing direct access to the embarkation deck should be as widely separated as possible.

G16.3 Arrangement of doors along escape routes and accessibility of embarkation decks

G16.3.1 The escape routes are routes for escape and also for access. Accordingly, the locking arrangements should be such that it does not obstruct these two objectives (escape and access) and that the doors in way of the escape routes can be opened from both sides.

G16.3.2 The embarkation deck should be accessible from the open decks to which the escape routes lead.

G16.4 Spaces in tower blocks

G16.4.1 When crew accommodation, service spaces and control stations are arranged in a tower block with no outside decks, all tiers in the block should be connected to each other by means of external sloping ladderways with at least one access door in each tier and by an internal enclosed stairway.

G16.5 Spaces in which gas cylinders are stored (on cargo ships)

G16.5.1 Table 9.5 in regulation 9, which relates to the location of spaces containing the gas fire extinguishing medium for cargo spaces on cargo ships, should also be noted. See also guidance to regulation 9.7 on Independent Ventilation Systems in respect of spaces in which gas cylinders are stored.

G17 Emergency escape breathing devices

G17.1 The minimum carriage of spares is one in cargo ships and in passenger ships two spare sets. In addition when more than 40 sets are carried one additional spare set is to be carried for each further 20 units (or part there of) with a total maximum number of 4 spare sets needed to be carried on board.

G17.2 The numbers needed for machinery spaces is undefined and is a departure from the normal prescriptive requirement. Because of the different manning arrangements and machinery space layouts, IMO concluded that it would be not be possible to determine satisfactory carriage requirements. The object of the regulation is to allow personnel to evacuate a dangerous space to a place of safety. It is the owner/operator, through a risk assessment process, and in consultation with the ships crew, who is to determine the number and location of the EEBD's. If a surveyor attending a ship is not satisfied with the arrangements, he/she should ask for the assessment to be repeated in light of deficiencies identified.

G18 Flexible ladders (not acceptable)

G18.1 Flexible ladders, i.e. ladders having strings of flexible steel wire rope (or chains) are not acceptable as forming part of any escape route.

G19 Crew spaces

G19.1 In a space or group of spaces allocated solely to crew, the means of escape referred to in paragraphs 4.1.1 and 4.1.2 may consist of one stairway providing continuous fire shelter to the lifeboat, liferaft and marine escape system embarkation decks or, where necessary, to a higher deck and another stairway or vertical ladder giving access to the deck above through an escape hatch with access from that deck to the embarkation decks. In certain circumstances, depending upon the layout of the spaces under consideration and the positions of the stairway, it may be necessary to provide two escape hatches, one port and one

starboard, in order to ensure that a fire in a particular location would not render escape impossible from some spaces.

G20 Special category spaces

G20.1 The stairways forming the means of escape from each special category space should be suitably spaced in order to provide adequate coverage to the whole of the space. In general, at least one stairway should be provided at each end of the space and one stairway at approximately mid-length, each of which provides continuous fire shelter to the lifeboat, liferaft and marine escape system embarkation positions or, where necessary, to a higher deck. However, in ships fitted with two or more casings, this spacing of stairways providing continuous fire shelter should apply to each casing. Suitable signs to indicate the route to the escape stairways should be provided.

G21 Ro-Ro spaces

G21.1 Ro-Ro spaces should be fitted with at least one stairway providing continuous fire shelter to the lifeboat, liferaft and marine escape system embarkation decks or, where necessary, to a higher deck and a stairway or ladder giving access to the deck above through an escape hatch with access from that deck to the embarkation decks. The two means of escape should be situated at opposite ends of the Ro-Ro space or as near thereto as practicable. Additional means of escape may be necessary in a space which extends longitudinally over a considerable portion of the ships length. Suitable signs to indicate the route to the escape stairways should be provided.

G22 Number and location of escape routes in Ro-Ro spaces

G22.1 The escape (and access) routes in Ro-Ro spaces should be so arranged that there are adequate escape routes during both the loading and unloading process.