

# 11 SAFE MOVEMENT ON BOARD SHIP

## 11.1 Introduction

11.1.1 Providing conditions for safe movement on board ship is considered to be an integral part of ensuring a safe working environment on board, as required by the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997, regulation 5(2)(e).

Following the principles and guidance in this chapter will generally be considered to demonstrate compliance with the duty to ensure a safe working environment on board ship. Where different measures are taken to provide a safe movement, these alternative measures must provide at least an equivalent level of safety in the operating conditions at the time.

11.1.2 The purpose of this chapter is to set out appropriate standards to ensure that anyone can move safely to any place on the ship to which a person may be expected to go.

11.1.3 Places on the ship where persons may be expected to go include accommodation areas as well as normal places of work and passenger areas. 'Persons' in this context include seafarers and other persons working on board, passengers, dock workers and other visitors to the ship on business, but exclude persons who have no right to be on the ship.

## 11.2 General principles

11.2.1 All deck surfaces used for transit about the ship and all passageways, walkways and stairs should be properly maintained and kept free from substances liable to cause a person to slip or fall.

11.2.2 For areas used for transit, loading or unloading of cargo or for other work processes, an adequate level of lighting should be provided. Further guidance is in section 11.5 and in Annex 11.2 to this chapter.

11.2.3 The Company, employer and master are also responsible for ensuring that any permanent safety signs providing information for those moving around the ship comply with the regulations and merchant shipping notice.

11.2.4 Any opening, open hatchway or dangerous edge into, through or over which a person may fall should be fitted with secure guards or fencing of adequate design and construction. Advice on guardrails and safety fencing is given in section 11.6. These requirements do not apply where the opening is a permanent access way or where work is in progress that could not be carried out with the guards in place.

11.2.5 The ship's powered vehicles (including mobile lifting plant) may only be driven by a competent, authorised person who is able to ensure that they are used safely. Such vehicles must be properly maintained.

## 11.3 Drainage

11.3.1 Decks that need to be washed down frequently, or are liable to become wet and slippery, should be provided with an effective means of draining water away. Apart from any

open deck, these places include the galley, the ship's laundry and the washing and toilet accommodation.

11.3.2 Drains and scuppers should be regularly inspected and properly maintained.

11.3.3 Where drainage is by way of channels in the deck, these should be suitably covered.

11.3.4 Duck boards, where used, should be soundly constructed and designed and maintained so as to prevent accidental tripping.

#### 11.4 Transit areas

11.4.1 Where necessary for safety, walkways on decks should be clearly marked, e.g. by painted lines or other means. Where a normal transit area becomes unsafe to use for any reason, the area should be closed until it can be made safe again.

11.4.2 Transit areas should where practicable have slip-resistant surfaces. Where an area is made slippery by snow, ice or water, sand or some other suitable substance should be spread over the area. Spillages of oil or grease, etc. should be cleaned up as soon as possible.

11.4.3 When rough weather is expected, lifelines should be rigged securely across open decks.

11.4.4 Gratings in the deck should be properly maintained and kept closed when access to the space below is not required.

11.4.5 Permanent fittings that may cause hazards to movement (e.g. pipes, single steps, framing, door arches, and top and bottom rungs of ladders) should be made conspicuous by the use of contrasting coloured, marking, lighting or signage. Temporary obstacles can also be hazardous and, if they are to be there for some time, they should be marked by appropriate warning signs.

11.4.6 When at sea, any gear or equipment stowed to the side of a passageway or walkway should be securely fixed or lashed against the movement of the ship.

11.4.7 Litter and loose objects (e.g. tools) should not be left lying around. Wires and ropes should be stowed and coiled so as to minimise obstruction.

11.4.8 Particular attention should be given to areas to which shore-based workers and passengers have access, especially on deck, as they will be less familiar with possible hazards.

11.4.9 When deck cargo is being lashed and secured, special measures may be needed to ensure safe access to the top of, and across, the cargo.

## 11.5 Lighting

11.5.1 The level of lighting should be such as to enable obvious damage to, or leakage from, packages to be seen. When there is a need to read labels, or container plates, or to distinguish colours, the level of lighting should be adequate to allow this or other means of illumination should be provided.

11.5.2 Lighting should be reasonably constant and arranged to minimise glare and dazzle, the formation of deep shadows and sharp contrasts in the level of illumination between one area and another.

11.5.3 Where visibility is poor (e.g. due to fog, clouds of dust, or steam), which could lead to an increase in the risks of accidents occurring, the level of lighting should be increased above the recommended minimum.

11.5.4 Lighting facilities should be properly maintained. Broken or defective lights should be reported to the responsible person and repaired as soon as practicable.

11.5.5 Before leaving an illuminated area or space, a check should be made that there are no other persons remaining within that space before switching off or removing lights.

11.5.6 Unattended openings in the deck should either be kept illuminated or be properly or safely closed before lights are switched off.

11.5.7 When portable or temporary lights are in use, the light supports and leads should be arranged, secured or covered so as to prevent a person tripping, being hit by moving fittings or walking into cables or supports. Any slack in the leads should be stowed so as not to create a trip hazard. The leads should be kept clear of possible causes of damage (e.g. running gear, moving parts of machinery, equipment and loads). If they pass through doorways, the doors should be secured open. Leads should not pass through doors in watertight bulkheads or fire

door openings when the ship is at sea. Portable lights should never be lowered or suspended by their leads.

11.5.8 Where portable or temporary lighting has to be used, fittings and leads should be suitable and safe for the intended usage. To avoid risks of electric shock from mains voltage, the portable lamps used in damp or humid conditions should be of low voltage, preferably 12 volts, or other suitable precautions should be taken.

## 11.6 Guarding of openings

11.6.1 Hatchways that are open for handling cargo or stores, through which persons may fall or on which they may trip, should be closed as soon as work stops, except during short interruptions or where they cannot be closed without prejudice to safety or mechanical efficiency because of the heel or trim of the ship.

11.6.2 The guardrails or fencing should have no sharp edges and should be properly maintained. Where necessary, locking devices and suitable stops or toe-boards should be provided. Each course of rails should be kept substantially horizontal and taut throughout their length.

11.6.3 Guardrails or fencing should consist of an upper rail at a height of 1 metre and an intermediate rail at a height of 0.5 metres. The rails may consist of taut wire or taut chain.

11.6.4 Where the opening is a permanent access way, or where work is in progress which could not be carried out with the guards in place, guards do not have to be fitted during short interruptions in the work (e.g. for meals), although warning signs should be displayed where the opening is a risk to other persons.

## 11.7 Watertight doors

11.7.1 Watertight doors can inflict serious injury if their operation is not carried out correctly. Therefore, all seafarers who would have occasion to use any watertight doors should be instructed in their safe operation. Seafarers who have not been instructed in their use should not under any circumstance operate them until such training has been given. Training records should be kept. Doors should always be operated in accordance with local instructions.

11.7.2 Class D watertight doors must always be kept closed during navigation.

11.7.3 Class C watertight doors may be opened during navigation to permit the passage of passengers or crew. The door must be immediately closed when transit through the door is complete.

11.7.4 Class B watertight doors may be opened during navigation when necessary for work in the immediate vicinity of the door. The door must be immediately closed when that work is finished.

11.7.5 Class A watertight doors are permitted by the administration to remain open during navigation. In all cases, if a watertight door is found closed it may automatically close after being opened manually so extra care must be taken.

11.7.6 Any class of watertight door may be put into bridge operation mode. If opened locally under these circumstances the door will reclose automatically with a force sufficient to crush anyone in its path as soon as the local control has been released. It is safest to treat doors as if they are in this mode at all times.

11.7.7 The local controls are positioned on each side of the door so that a person passing through may open the door and then reach to the other control to keep the door in the open position until transit is complete. As both hands are required to operate the controls, no seafarer should attempt to carry any load through the door unassisted. If it is necessary to carry anything through a watertight door in these circumstances another person should be employed to assist.

11.7.8 Notices clearly stating the method of operation of the local controls should be prominently displayed on both sides of each watertight door.

11.7.9 No one should attempt to pass through a watertight door when it is closing and/or the warning bell is sounding. In all cases, seafarers should wait until the door is fully open before attempting to pass through it.

11.7.10 Any watertight door found in a closed position must be returned to that position after opening.

11.7.11 When reading this advice, note should be made of the content of marine guidance note MGN 35(M+F), Accidents when using power-operated watertight doors.

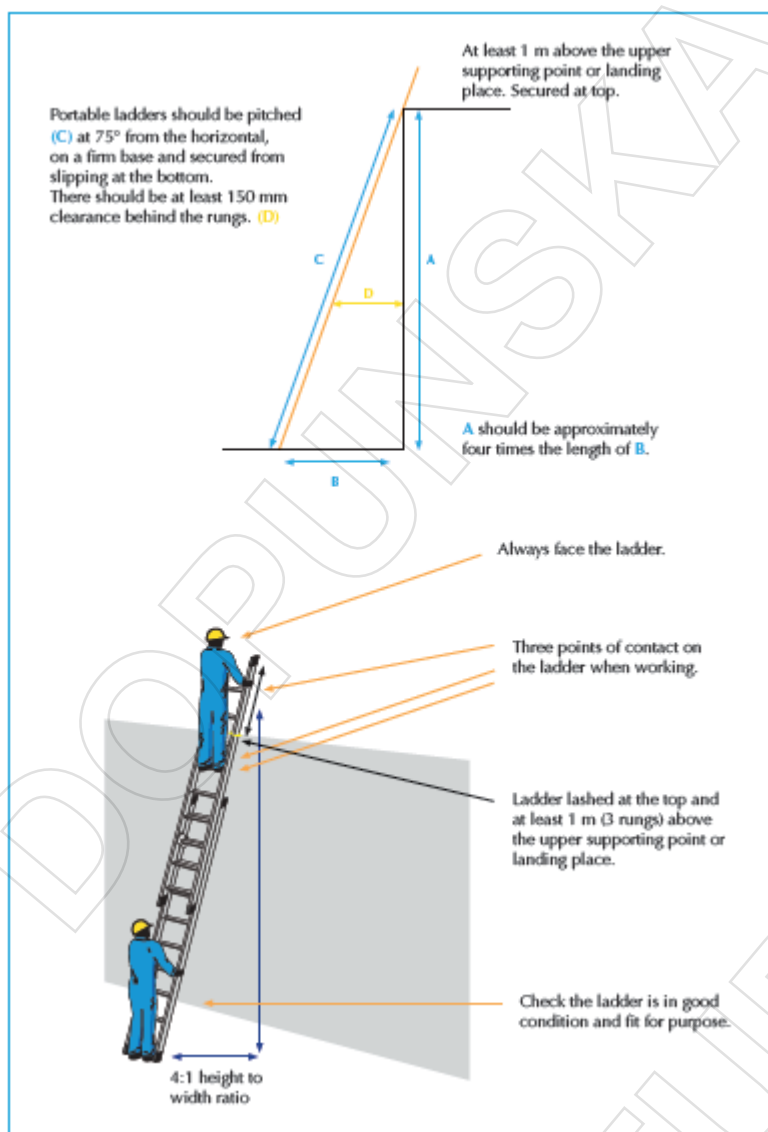
*MGN 35(M+F)*

## 11.8 Stairways, ladders and portable ladders

11.8.1 Stairways on ships are often set at a steep angle. Handrails should always be used, and where possible tools, etc. carried in a belt rather than in the hand, to leave hands free.

11.8.2 All ship's ladders should be of good construction and sound material, strong enough for the purpose for which they are used, free from patent defect and properly maintained. Ladders providing access to the hold should comply with the standards in Annex 11.1.

11.8.3 Suitable handholds should be provided at the top and at any intermediate landing place of all fixed ladders.



11.8.4 A portable ladder should only be used where no safer means of access is reasonably practicable.

11.8.5 Portable ladders should be pitched at 75° from the horizontal, properly secured against slipping or shifting sideways and be so placed as to afford a clearance of at least 150 mm behind the rungs. Where practicable, the ladder should extend to at least 1 metre above any upper landing place unless there are other suitable handholds.

## 11.9 Shipboard vehicles

11.9.1 Seafarers selected to drive the ship's powered vehicles and powered mobile-lifting appliances should be fit to do so, and have been trained for the particular category of vehicle or mobile-lifting appliance to be driven, and tested for competence.



11.9.2 Authorisations of seafarers should either be individually issued in writing or comprise a list of persons authorised to drive. These authorisations may need to be made available for inspection to port authorities.

11.9.3 Maintenance of the ship's powered vehicles and powered mobile-lifting appliances should be undertaken in accordance with the manufacturer's instructions.

11.9.4 Drivers of the ship's powered vehicles and powered mobile-lifting appliances should exercise extreme care, particularly when reversing.

#### 11.10 Entry into dangerous (enclosed) spaces

11.10.1 A dangerous (enclosed) space is defined in the regulations as 'any enclosed or confined space in which it is foreseeable that the atmosphere may at some stage contain toxic or flammable gases or vapours, or be deficient in oxygen, to the extent that it may endanger the life or health of any person entering that space.' Section 15.4 gives advice on identifying these hazards.

*S.I. 1988/1638*

11.10.2 The master is required to ensure that all unattended dangerous spaces are secured against entry, except when it is necessary to enter.

11.10.3 The Company must have procedures in place for entering and working in dangerous spaces, and it is the master's responsibility to ensure these are followed. No person should enter or remain in a dangerous space unless they are trained to do so, and follow the set procedures.

11.10.4 Chapter 15 of this Code provides detailed information on the procedures for entry into dangerous spaces.

#### 11.11 Working on deck while ship is at sea

11.11.1 The responsible officer should ensure that seafarers working on deck are properly instructed in the tasks that they are required to perform.

11.11.2 Seafarers should be prohibited at all times from sitting upon the vessel's bulwark or rail.

11.11.3 Bridge watchkeeping officers should be informed of all work being performed on deck or in deck spaces.

## 11.12 Adverse weather

11.12.1 If adverse weather is expected, lifelines should be rigged in appropriate locations on deck.

11.12.2 No seafarers should be on deck in conditions that the master considers adverse weather unless it is considered necessary for the safety of the ship, passengers and crew, or the safety of life at sea. Where possible, work should be delayed until conditions have improved, e.g. until daylight, or until the next port of call.

11.12.3 The lashings of all deck cargo should be inspected and tightened, as necessary, when rough weather is expected. Anchors should be secured and hawse and spurling pipe covers fitted and sealed when rough weather is expected, regardless of the expected voyage duration.

11.12.4 Work on deck during adverse weather should be authorised by the master and the bridge watch should be informed. A risk assessment should be undertaken, and a permit to work and a company checklist for work on deck in heavy weather completed.

11.12.5 Any seafarers required to go on deck during adverse weather should wear a lifejacket suitable for working in, a safety harness (which can be attached to lifelines) and waterproof personal protective equipment including full head protection, and should be equipped with a water-resistant UHF radio. Head-mounted torches should be considered.

11.12.6 Seafarers should work in pairs or in teams. All seafarers should be under the command of a competent person.

11.12.7 Use of stabilising fins (if fitted) to reduce rolling, and adjusting the vessel's course and speed should be considered to mitigate the conditions on deck. If possible, visible communication should be maintained from the bridge, but if not other continuous communication should be maintained.

## 11.13 General advice to seafarers

11.13.1 Seafarers and others on board must take care for their own health and safety in moving around the ship, and in particular must cooperate with any measures put in place for their safety.

*S.I. 1997/2962, Reg. 21*

11.13.2 Seafarers are reminded to take care as they move about the ship. The following list is not exhaustive but identifies points which are all too often overlooked:

- Seafarers should watch out for tripping hazards, and protrusions such as pipes, framing, etc.
- The possibility of a sudden or heavy roll of the ship should always be borne in mind.
- Suitable footwear should be worn that will protect toes against accidental stubbing and falling loads, will afford a good hold on deck and give firm support while using ladders. Extra care should be taken when using ladders whilst wearing sea boots.
- It is dangerous to swing on or vault over stair rails, guardrails or pipes.
- Injuries are often caused by jumping off hatches, etc.
- Manholes and other deck accesses should be kept closed when not being used; guardrails should be erected and warning signs posted when they are open.
- Spillage of oil, grease, soapy water, etc. should be cleaned up as soon as practicable.
- Areas made slippery by snow, ice or water should be treated with sand or some other suitable substance.
- The presence of temporary obstacles should be indicated by appropriate warning signs.
- Litter and loose objects (e.g. tools) should be cleared up.
- Wires and ropes should be coiled and stowed.
- Lifelines should be rigged securely across open decks in rough weather.
- Stairways and ladders are usually at a steeper angle than is normal ashore.
- Ladders should be secured and ladder steps kept in good condition; care should be taken when using ladders and gangways providing access to or about the vessel, particularly when wearing gloves.
- The means of access to firefighting equipment, emergency escape routes and watertight doors should never be obstructed.

## Annex 11.1 Standards for hold access

Hold access: ships built after 31 December 1988

Where the keel of a ship is laid or the ship is at a similar stage of construction after 31 December 1988, the following standards of hold access should be provided:

- The access shall be separate from the hatchway opening, and shall be by a stairway if possible.
- The rungs of a fixed ladder, or a line of fixed rungs, shall have no point where they fill a reverse slope.
- The rungs of a fixed ladder shall be at least 300 mm wide, and so shaped or arranged that a person's foot cannot slip off the ends. Rungs shall be evenly spaced at intervals of not more than 300 mm and there shall be at least 150 mm clear space behind each rung.
- There shall be space outside the stiles of at least 75 mm to allow a person to grip them.
- There shall be a space at least 760 mm wide for the user's body, except that at a hatchway this space may be reduced to a clear space of at least 600 mm by 600 mm.
- Fixed vertical ladders should be provided with a safe intermediate landing platform at intervals of not more than 9 metres.
- Where vertical ladders to lower decks are not in a direct line, a safe intermediate landing shall be provided.
- Intermediate landings shall be of adequate width, afford a secure footing and extend from beneath the foot of the upper ladder to the point of access to the lower ladder. They shall be provided with guardrails.
- Fixed ladders and stairways giving access to holds shall be so placed as to minimise the risk of damage to them from cargo-handling operations.
- Fixed ladders shall, if possible, be so placed or installed as to provide back support for a person using them; but hoops shall be fitted only where they can be protected from damage to them from cargo-handling operations.

Hold access: ships built before 1 January 1989

Where the keel of a ship was laid or the ship was at a similar stage of construction before 1 January 1989, at least the following standards of hold access should be provided:

- Access should be provided by steps or ladder, except:
  - at coamings; and
  - where the provision of a ladder on a bulkhead or in a trunk hatchway is clearly not reasonably practicable.

In such cases ladder cleats or cups may be used.

- All ladders between lower decks should be used in the same line as the ladder from the top deck, unless the position of the lower hatch (or hatches) prevents this.
- Cleats or cups should be at least 250 mm wide and so constructed as to prevent a person's foot slipping off the side.
- Each cleat, cup, step or rung of a ladder shall provide a foothold, including any space behind the ladder, at least 115 mm deep. Cargo should not be stowed as to produce this foothold.
- Ladders which are reached by cleats or cups on a coaming should not be recessed under the deck more than is reasonably necessary to keep the ladder clear of the hatchway.
- Shaft tunnels should be equipped with adequate handholds and footholds on each side.
- All cleats, cups, steps or rungs of ladders should provide adequate handholds.

## Annex 11.2 Standards for lighting

- For areas used for loading or unloading of cargo or for other work processes, a lighting level of at least 20 lux should be provided.
- For transit areas, a level of at least 8 lux should be provided (measured at a height of 1 metre above the surface level) unless:
  - a higher level is required by other regulations, e.g. the regulations for crew accommodation (see merchant shipping notice MSN 1844(M) and MGN 481(M)); or
  - provision of such levels of lighting would contravene other regulations, e.g. the Convention on the International Regulations for Preventing Collisions at Sea (COLREG), 1972 (as amended), including signals of distress.
- For access equipment and immediate approaches to it, a lighting level of at least 20 lux should be provided (measured at a height of 1 metre above the surface level), unless:
  - a higher level is required by other regulations; or
  - provision of such levels of lighting would contravene other regulations, e.g. the Convention on the International Regulations for Preventing Collisions at Sea (COLREG), 1972 (as amended), including signals of distress; or
  - where the dangers of tripping or falling are greater than usual because of bad weather conditions or where the means of access is obscured, e.g. by the presence of coal dust. In such circumstances, consideration should be given to a higher level, e.g. 30 lux.
- General rules for where these specific regulations do not apply are given in section 11.5 of this chapter.

*MSN 1844 and MGN 481(M)*