BOARDING ARRANGEMENTS

18.1 Introduction

18.1.1 Based on the findings of the risk assessment, appropriate control measures should be put into place to protect those who may be affected. This chapter highlights some areas which may require attention in respect of boarding arrangements.

18.2 Positioning of Boarding Equipment

18.2.1 The angles of inclination of a gangway or accommodation ladder should be kept within the limits for which it was designed. Gangways should not be used at an angle of inclination greater than 30° from the horizontal and accommodation ladders should not be used at an angle greater than 55° from the horizontal, unless specifically designed for greater angles.

18.2.2 When the inboard end of the gangway or accommodation ladder rests on or is flush with the top of the bulwark, a bulwark ladder should be provided. Any gap between the bulwark ladder and the gangway or accommodation ladder should be adequately fenced to a height of at least 1 metre.

18.2.3 Gangways and other access equipment should not be rigged on ships' rails unless the rail has been reinforced for that purpose. They should comply with the guidance in Annex 18.1.

18.2.4 The means of access should be checked to ensure that it is safe to use after rigging. There should be further checks to ensure that adjustments are made when necessary due to tidal movements or change of trim and freeboard. Guard ropes, chains etc should be kept taut at all times and stanchions should be rigidly secured.

18.2.5 Each end of a gangway or accommodation or other ladder should provide safe access to a safe place or to an auxiliary safe access.

18.2.6 The means of access should be sited clear of the cargo working area and so placed that no suspended load passes over it. Where this is not practicable, access should be supervised at all times.

18.2.7 A life-buoy should be available and ready for use at the point of access aboard the ship.

18.3 Lighting and Safety of Movement

18.3.1 In normal circumstances, the boarding equipment and the immediate approaches to it should be effectively illuminated from the ship or the shore to at least a level of 20 lux, as measured at a height of 1 metre above the surface of the means of access or its immediate approaches. Where the dangers of tripping or falling are greater than usual because of bad weather conditions or where the means of access is obscured, eg by the presence of coal dust, consideration should be given to a higher minimum level of say 30 lux.

18.3.2 The means of boarding and its immediate approaches should be kept free from obstruction and, as far as is reasonably practicable, kept clear of any substance likely to cause a person to slip or fall. Where this is not possible, appropriate warning notices should be posted and if necessary the surfaces suitably treated.

18.4 Portable and Rope Ladders

18.4.1 Where, exceptionally, a portable ladder is used for the purpose of access to the ship, it is very important that the ladder is checked regularly by a competent person, and that account is taken of vessel movement and tide changes.

18.4.2 When it is necessary to use a portable ladder for access it should be used at an angle of between 60° and 75° from the horizontal. The ladder should extend at least 1 metre above the upper landing place unless there

are other suitable handholds. It should be properly secured against slipping or shifting sideways or falling and be so placed as to afford a clearance of at least 150 mm behind the rungs.

18.4.3 When a portable ladder is resting against a bulwark or rails, suitable safe access to the deck as recommended in paragraph 18.2.2 should be provided.

18.4.4 A rope ladder should never be secured to rails or to any other means of support unless the rails or support are so constructed and fixed as to take the weight of a man and a ladder with an ample margin of safety.

18.4.5 A rope ladder should be left in such a way that it either hangs fully extended from a securing point or is pulled up completely. It should not be left so that any slack will suddenly pay out when the ladder is used.

18.4.6 Where the freeboard is 9 metres or more, a rope ladder should be used in conjunction with an accommodation ladder, leading aft and positioned in such a way as to provide safe and easy access from the rope ladder to the bottom platform. Further guidance is contained in Annex 18.1.

18.5 Safety nets

18.5.1 A safety net should be mounted whenever possible where a person may fall from boarding equipment or from the ship's deck or quayside. The aim of safety nets is to minimise the risk of injury arising from falling between the ship and the quay or falling onto the quay or deck and as far as is reasonably practicable the whole length of the means of access should be covered. Safety nets should be securely rigged, with use being made of attachment points on the quayside where appropriate.

18.6 Maintenance of equipment for means of access

18.6.1 Any equipment used for boarding must be properly maintained, and should be inspected by a competent person at appropriate intervals. Any

defects affecting the safety of any access equipment, including access provided by a shore authority, should be reported immediately to a responsible person and should be made good before further use.

18.6.2 Aluminium equipment should be examined for corrosion in accordance with the instructions in Annex 18.2.

18.6.3 Gangways, accommodation ladders and winches used for lifting or access should be tested in the same way as all other lifting appliances and records maintained including any test certificates.

18.7 Special Circumstances

18.7.1 In some circumstances it may not be practical to mount proper safe boarding arrangements by conventional means, for example, where there is frequent movement of the ship during cargo operations. On such occasions boarding should be carefully supervised and consideration given to providing alternative means of access.

18.7.2 Small boats or tenders used between the shore and the ship should be safe and stable, be suitably powered, correctly operated and properly equipped with the necessary safety equipment and, if not a ship's boat, be approved for that purpose.

18.7.3 Where a vessel is moored alongside another vessel, there should be co-operation between the two vessels in order to provide suitable and safe boarding arrangements. Access should generally be provided by the ship lying outboard, except that, where there is a great disparity in freeboard, access should be provided by the ship with the higher freeboard.

18.7.4 Care should be taken at all times, but particularly at night, when boarding or leaving a ship, or when moving through the dock area. The edges of the docks, quays etc should be avoided and any sign prohibiting entry to an area

should be strictly observed. Where there are designated routes they should be followed exactly. This is particularly important in the vicinity of container terminals or other areas where rail traffic, straddle carriers or other mechanical handling equipment is operating, as the operators of such equipment have restricted visibility, placing anyone walking within the working area at risk.

18.7.5 Transfer of personnel between two unsecured ships at sea is potentially a particularly dangerous manoeuvre. A risk assessment of the transfer arrangements should be undertaken and appropriate safety measures put into place to ensure the safety of those involved. Both vessels should be properly equipped and/or modified to allow the boarding to be undertaken without unnecessary risk. A proper embarkation point should be provided, and the boarding procedure clearly agreed. The relative movements of both vessels in any seaway and varying sea, tide and swell conditions make the judgement of when to effect a transfer crucial. The Master responsible for the transfer operation should have full sight of the area of transfer and he, and at least one designated crew member should be able to communicate at all times with the crew member making the transfer. It is recommended that vessels undertaking ship to ship transfers while underway, should carry equipment designed to aid in the rapid recovery of a casualty from the waters.

18.7.6 A lifejacket should be donned where there is a risk of falling into the water when transferring to a vessel or structure not alongside. The transfer of baggage or other items being transferred should be done by the crews of the vessels and not by those boarding.

18.8 Pilot ladders and hoists

18.8.1 Where a pilot hoist is provided, personnel engaged in rigging and operating it should be fully instructed in the safe procedures to be adopted and the equipment should be tested prior to use.

18.8.2 The pilot ladder and any accommodation ladder used in conjunction with it should conform to the standards contained in Annex 18.1

18.8.3 In addition to the general points in sections 18.2 to 18.4 above, in order to minimise the danger to pilots when boarding and leaving ships, particular attention should be given to the following points:

(a) Pilot ladders should be rigged in such a manner that the steps are horizontal, and such that the lower end is at a height above the water to allow ease of access to and from the attendant craft;

(b) The ladder should rest firmly against the side of the ship;

(c) When an accommodation ladder is used in conjunction with a pilot ladder, the pilot ladder should extend at least two metres above the bottom platform;

(d) The rigging of pilot ladders and the embarkation and disembarkation of pilots must be supervised by a responsible officer of the ship, who should be in contact with the bridge.

(e) A life-buoy with self-igniting light should be kept available at the point of access to the ship.

(f) At night, the pilot ladder and ship's deck should be lit by a forward-shining, overside light.

18.8.4 It is very important that the ship offers a proper lee to the pilot boat. The arrangements for boarding should preferably be sited as near amidships as possible, but in no circumstances should they be in a position which could lead to the pilot boat running the risk of passing underneath overhanging parts of the ship's hull structure. Further information is contained in the relevant Merchant Shipping Notice.

ANNEX 18.1

CONSTRUCTION OF MEANS OF ACCESS

General

1. Gangways must be carried on ships of 30 metres in length or over and accommodation ladders must be carried on ships of 120 metres in length or over, complying with the specifications below. Access equipment must be of good construction, sound material and adequate strength, free from patent defect and properly maintained. Rope ladders must comply with the requirements in Section 18.4 and paragraph 7 below.

2. Gangways and accommodation ladders must be clearly marked with the manufacturer's name, the model number, the maximum designed angle of use and the maximum safe loading both by numbers of persons and by total weight.

3. Gangways must comply with the specifications set out in standard BS MA 78: 1978 or equivalent, and must be fitted with suitable fencing along their entire length.

4. Gangways, accommodation ladders and winches used for lifting and/or access should be tested in the same way as all other lifting appliances and records maintained including any test certificates.

Accommodation ladders

5. Accommodation ladders must comply with the specifications set out in Standard BS MA 89: 1980 or after 1 January 2010 should meet applicable international standards such as ISO 5488:1979, Shipbuilding or of an equivalent standard,

6. The ladder should be designed so that :

- it rests firmly against the side of the ship;
- the angle of slope is no more than 55°. Treads and steps should provide a safe foothold at the angle at which the ladder is used;
- it is fitted with suitable fencing (preferably rigid handrails) along its entire length, except that fencing at the bottom platform may allow access

from the outboard side;

- the bottom platform is horizontal, and any intermediate platforms are self-levelling.
- it can easily be inspected and maintained.
- it is rigged as close to the working area but clear of any cargo operations as possible.
- it is marked with its safe working load at the top and bottom.

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7. When a bulwark ladder is to be used it must comply with the specifications set out in the Shipbuilding Industry Standard No SIS 7, or BS MA 39: Part 2, Ships' ladders (steel sloping) or be of an equivalent standard. Adequate fittings must be provided to enable the bulwark ladder to be properly and safely secured.

8. When an accommodation ladder is being rigged this should be completed with the ladder in the horizontal position so that those working on it can be safely attached with a safety line to the deck and the ladder secured to reduce any unnecessary movement.

9. Gangways, pilot hoists and accommodation ladders are to be considered as lifting equipment and should be tested and recorded as such.

Rope Ladders

10. A rope ladder must be of adequate width and length and so constructed that it can be efficiently secured to the ship.

- The steps must provide a slip-resistant foothold of not less than 400 mm x 115 mm x 25 mm and must be so secured that they are firmly held against twist, turnover or tilt.
- The steps must be horizontal and equally spaced at intervals of 310 mm (± 5mm).
- The side ropes, which should be a minimum of 18mm in diameter, should be equally spaced.
- There should be no shackles, knots or splices between rungs.
- Ladders of more than 1.5 metres in length must be fitted with spreaders not less than 1.8 metres long. The lowest spreader must be on the fifth

step from the bottom and the interval between spreaders must not exceed nine steps. The spreaders should not be lashed between steps.

Access for Pilots

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11. In addition to the standards above, every pilot ladder should be positioned and secured so that:

- it is clear of any possible discharges from the ship;
- it is, where practicable, within the mid-ship half-section of the ship (but see 18.8.4);
- it is firmly secured to the ship's side; and
- the person climbing it can safely and conveniently board the ship after climbing no more than 9 metres.

12. Where replacement steps are fitted, they should be secured in position by the method used in the original construction of the ladder. No pilot ladder should have more than two replacement steps secured in position by a different method. Where a replacement step is secured by means of grooves in the sides of the step, such grooves should be in the longer sides of the step.

13. Two man-ropes of not less than 28 mm in diameter, properly secured to the ship should be provided.

14. Safe, convenient and unobstructed access should be provided to anyone embarking or disembarking between the ship and the head of the pilot ladder.

15. Where access to the ship is by a gateway in the rails or bulkhead, adequate handholds should be provided. Shipside doors used for this purpose should not open outwards.

16. Where access is by bulwark ladder, the ladder should be securely attached to the bulwark rail or landing platform. Two handhold stanchions should be provided, between 700mm and 800mm apart, each of which should be rigidly secured to the ship's structure at or near its base and at another higher point. The stanchions should be at least 40mm in diameter and extend no less than 1.20 metres above the top of the bulwarks.

17. Where the freeboard of the ship is more than 9 metres, accommodation ladders must be provided on each side of the ship.

18. Such accommodation ladders should comply with the standards in paragraph 5 above, and in addition:

- the pilot ladder should extend at least 2 metres above the accommodation ladder's bottom platform;
- if a trap door is fitted in the bottom platform to allow access to the pilot ladder, the opening should be no less than 750mm square, and the after part of the bottom platform should be fenced as the rest of the ladder. In this case, the pilot ladder should extend above the lower platform to the height of the handrail.

Pilot hoists

19. Detailed construction standards for pilot hoists are contained in SOLAS Chapter V Annex 21. These have not been re-produced here as hoists must be of an approved design and are subject to annual survey as part of the annual and renewal survey for the vessel's safety equipment certificate.

ANNEX 18.2

CORROSION OF ACCOMMODATION LADDERS AND GANGWAYS

1. Aluminium alloys are highly susceptible to galvanic corrosion in a marine atmosphere if they are used in association with dissimilar metals. Great care should be exercised when connecting mild steel fittings, whether or not they are galvanised, to accommodation ladders and gangways constructed of aluminium.

2. Plugs and joints of neoprene, or other suitable material, should be used between mild steel fittings, washers, etc and aluminium. The plugs or joints should be significantly larger than the fittings or washers.

3. Repairs using mild steel doublers or bolts made of mild steel or brass or other unsuitable material should be considered as temporary. Permanent repairs, or the replacement of the means of access, should be undertaken at the earliest opportunity.

4. The manufacturer's instructions should give guidance on examination and testing of the equipment. However, close examination of certain parts of accommodation ladders and gangways is difficult due to their fittings and attachments. It is essential, therefore, that the fittings are removed periodically for a thorough examination of the parts most likely to be affected by corrosion. Accommodation ladders and gangways should be turned over to allow for a thorough examination of the underside. Particular attention should be paid to the immediate perimeter of the fittings; this area should be tested for corrosion with a wire probe or scribe. Where the corrosion appears to have reduced the thickness of the parent metal to 3 mm, back plates should be fitted inside the stringers of the accommodation ladder or gangways.