

CODE OF PRACTICE ON

Provision of Safe Means of Access for Works on Local Vessels

(issued under Section 45A of the Merchant Shipping (Local Vessels) Ordinance, Cap 548)



Marine Industrial Safety Section
Marine Department, HKSAR

(December 2006 Edition)

CONTENT

	Page
FOREWARD	1
1. INTRODUCTION	3
1.1 Purpose	3
1.2 Scope	4
2. INTERPRETATION AND ABBREVIATION	5
2.1 Interpretation	5
2.2 Abbreviation	6
3. GENERAL DUTIES	8
3.1 General duties of person in charge of works	8
3.2 General duties of employer	8
3.3 Duties of works supervisor	8
3.4 General duties of person employed.....	9
4. EMBARKATION AND DISEMBARKATION OF LOCAL VESSELS.....	10
4.1 General	10
4.2 Access between Local Vessel and Shore or between Local Vessel and Place on Land	11
4.3 Access to Local Vessel in Mid-stream and between Local Vessel and Any Other Vessel.....	13
4.4 Accommodation Ladder and Gangway.....	16
4.5 Fixed ladders.....	18
4.6 Portable and Rope Ladders	19
4.7 Other Boarding Equipment.....	21
4.8 Lighting	22
APPENDIX I	
Reference	23
APPENDIX II	
Photos	24

FOREWORD

When ships are lying alongside wharfs or anchoring in mid-stream, embarking and disembarking on and from ships are inevitable to face risks due to tidal movement, ship's wake and swells, and freeboard disparity.

Eliminating the risks requires the use of boarding equipment which is of proper design with perfect match between vessel and its counterpart where boarding equipment is bridged. However, a great diversity of ship's shapes and wharf's contour makes complexity of design on the boarding equipment; likewise a wide variety of ship's sizes resultant with unpredictable freeboard disparity adds hurdle to the perfect matching with the counterparts in term of safe access. No matter how arduous it is to bridge a ship with its counterpart, a simple safe means of access is better than nothing provided. This code of practice aspires to help minimize the inherent risks by throwing out some ideas in this aspect.

This Code aims to providing practical guidance to certain expectable conditions which may be encountered in real circumstances. As alluded in above paragraphs, the real situations under a dynamic environment are diverse. Should there be any circumstances differing from that stated in this Code, the readers must make risk assessment on their own cases and institute corresponding safety measures by virtue of the concept provided in this Code.

Furthermore, this Code may be updated and amended from time to time to inter alia, include more practical cases and information so as to provide a practical guidance to the industry of cargo handling, ship-repair and ship-breaking, and marine construction.

This Code is issued under the Merchant Shipping (Local Vessels) Ordinance, Cap 548. It provides practical guidance mainly for the embarkation and disembarkation to local vessels where works is being or to be carried out. For embarkation and disembarkation to and from vessels (except local vessels), please refer to the "Code of Practice on Provision of Safe Means of Access for Works to Vessels under the Shipping And Port Control Ordinance, Cap 313".

For easy reference, the relevant legislation is jotted down on the left column of this Code and the right column sets out the relevant practical guidance. The readers should refer to the relevant Ordinance and regulations for the detailed legal meanings.

This is approved code of practice issued by the Director of Marine (the Director) under section 45A(1) of the Merchant Shipping (Local Vessels) Ordinance, Cap. 548 (the "Ordinance"). Section 45A(1) of the Ordinance empowers the Director to issue code of practice for the purpose of providing guidance in respect of any one or more of the requirements of Part VIII of the Ordinance or of regulations made under the Ordinance. It is important to note that compliance with this Code does not, of itself, confer immunity from the legal

obligations in Hong Kong. Persons in charge of works, employers, persons employed, owners and coxswains of local vessels, are reminded to observe other legal requirements during works.

Section 45A(4) of the Ordinance stipulates that a failure by any person to observe a provision of an approved code shall not of itself cause him to incur any criminal liability, but where –

- (a) in any criminal proceedings the defendant is alleged to have committed an offence either—
 - (i) by reason of a contravention of or a failure to comply with, whether by act or omission, this Ordinance or regulations under this Ordinance; or
 - (ii) by reason of a failure to discharge or perform a duty imposed by this Ordinance or such regulations; and
- (b) the matter to which the alleged contravention or failure relates is one to which, in the opinion of the court, an approved code relates,

then section 45A(5) shall apply as regards to the proceedings.

Section 45A(5) of the Ordinance stipulates that in any criminal proceedings to which the section applies, the following, namely—

- (a) compliance with a provision of an approved code found by the court to be relevant to a matter to which a contravention or failure alleged in the proceedings relates;
- (b) a contravention of or failure to comply with, whether by act or omission, any such provision so found,

may be relied on by any party to the proceedings as tending to establish or to negative any liability which is in question in the proceedings.

1. INTRODUCTION

1.1 Purpose

- MS(LV)(W)R* 1.1.1 The Merchant Shipping (Local Vessels)(Works) Regulation, Cap 548 [MS(LV)(W)] impose various duties on the person in charge of works to ensure, amongst other things, that a safe means of access to and from local vessel is provided for the use by the persons employed for the purpose of works.
S.23
- 1.1.2 If the person in charge of works fails to provide a safe means of access, the employer shall make arrangement, as soon as reasonably practicable, for providing the safe access to the persons employed.
- 1.1.3 Under the Regulation, it is also a duty for the person in charge of works to ensure that the construction and maintenance of the means of access are adequate, and that the means of access is efficiently lighted.
- 1.1.4 This Code of Practice provides practical guidance in respect of the requirements relating to the safe means of access to and from local vessels. It is to be read by owners and coxswains of vessels, persons in charge of works, contractors, supervisors, safety personnel, employers and the persons employed to carry out works on, to or by means of a local vessels.
- MS(LV)O* 1.1.5 This Code of Practice is approved and issued by the Director of Marine (the Director) under Section 45A of the Merchant Shipping (Local Vessels) Ordinance, Cap 548 [MS(LV)O or the Ordinance]. It empowers the Director to issue code of practice for the purpose of providing practical guidance in respect of any one or more of the requirements of Part VIII of the Ordinance or of the regulations made under the Ordinance. The recommendations contained in this Code should not be regarded as exhausting those matters that need to be covered by the relevant safety legislation.
S. 45A
- 1.1.6 This Code has a special legal status. Although failure to observe any recommendation given in this Code is not itself an offence, but such failure may be taken into account by the court in criminal proceedings as a relevant factor in determining whether a person has breached the relevant safety legislation under the Ordinance or the Regulation. It will then be open to that person to satisfy the

court that he has complied with the legislation in some other way.

- 1.1.7 This Code may be revised or amended from time to time, or revoked by the Director and the notice of such revision, amendment or revocation will be published by notice in the Gazette. The statutory provisions summarised or referred to in this Code are the provisions in force on [Date of issue of the Code Of Practice].

1.2 Scope

- 1.2.1 This Code provides practical guidance in respect of the requirements relating to the safe means of access to and from local vessels within the waters of Hong Kong, on, to or by means of which works are to be or are being carried out. Works include –

- (i) repairs to a local vessel;
- (ii) the breaking up of a local vessel;
- (iii) cargo handling; or
- (iv) marine construction.

- 1.2.2 In particular, this Code provides practical guidance in respect of the safe means of access for the use by the persons employed at such times as they have to pass –

*MS(LV)(W)R
S. 6(1)*

- (i) between a local vessel and another vessel (regardless as to whether it is a local vessel); or

*MS(LV)(W)R
S. 4(1)*

- (ii) between a local vessel and the shore or a place on land.

- 1.2.3 The provision of boarding equipment generally for embarkation and disembarkation to or from local vessels on, to or by means of which no works are to be, or are being, carried out or where no “persons employed” are involved, may not be covered by this Code.

2. INTERPRETATION AND ABBREVIATION

Unless otherwise defined in this Code, the terms used in this Code have the same meaning as those in the Merchant Shipping (Local Vessels) Ordinance (Cap 548) and Merchant Shipping (Local Vessels)(Works) Regulation (Cap 548).

2.1 Interpretation

- MS(LV)O*
S. 2 “coxswain” (船長), in relation to a local vessel, means the person having for the time being the charge or command of the vessel; but where there is no such person or the vessel is in the charge or command of a person under the age of 16, it means the person whose name appears in the vessel’s certificate of ownership.
- MS(LV)(W)R*
S. 2 “person employed” (受僱人) means a person employed to carry out works.
- MS(LV)O*
S.2 “place on land” (陸上地方) means-
- (a) any premises, building or vehicle on land;
 - (b) any building, structure or object erected or placed on the bed or shore of the sea; or
 - (c) anything afloat (other than a vessel) if it is anchored or attached to the bed or shore of the sea.
- MS(LV)O*
S.2 “person in charge of works” (工程負責人) means –
- (a) the owner, or coxswain of, or other person having control over, a local vessel on, to or by means of which any works are to be, or are being, carried out;
 - (b) a principal contractor or sub-contractor, if any, who contracts to carry out, or who carries out, any works; or
 - (c) any other person having for the time being in command or in charge of any works being carried out on, to or by means of a local vessel.
- MS(LV)O*
S 2 “local vessel”(本地船隻) means
- (a) any vessel used solely within the waters of Hong Kong, whether registered under the Merchant Shipping (Registration) Ordinance (Cap 415) or in a place outside Hong Kong;
 - (b) any vessel regularly employed in trading to or from Hong Kong unless registered in a place outside Hong Kong;
 - (c) any vessel possessed or used for pleasure purposes in the waters of Hong Kong;
 - (d) any vessel employed in sea fishing plying regularly in the waters of Hong Kong, or using the waters of Hong Kong as a base; or
 - (e) any vessel—
 - (i) registered in the Mainland of China or Macau;
 - (ii) employed in trading to or from Hong Kong; and

- (iii) issued with any certificate by a government authority of the Mainland of China or Macau permitting its trading to Hong Kong other than any accepted convention certificate.

MS(LV)O
S. 2

“vessel (船隻)” in this Code includes

- (a) any ship, junk, boat, dynamically supported craft, seaplane, or any other description of vessel used in navigation; and
- (b) any other description of vessel in Hong Kong or in the waters of Hong Kong not used in navigation or not constructed or adapted for use in navigation.

MS(LV)O
S.37

“works” (工程) means

- (a) repairs to a local vessels;
- (b) breaking up of a local vessel;
- (c) cargo handling ; or
- (d) marine construction.

2.2 Abbreviation

“HKSAR” is the abbreviation for the Hong Kong Special Administrative Region.

“MS(LV)O” is the abbreviation for the Merchant Shipping (Local Vessels) Ordinance

“MS(LV)(W)R” is the abbreviation for the Merchant Shipping (Local Vessels)(Works) Regulation, Cap 548 sub. leg

“SAPCO” is the abbreviation for the Shipping and Port Control Ordinance, Cap. 313.

“SAPCWR” is the abbreviation for the Shipping and Port Control (Works) Regulation, Cap. 313 sub. leg. .

3. GENERAL DUTIES

The following paragraphs summarise the general duties of various duty holders engaged in the works carried out on local vessels concerning the requirements for safe means of access to and from local vessels stipulated in MS(LV)(W)R. This Section focuses on the requirements for safe means of access provided to embark and disembark local vessels.

3.1 General duties of person in charge of works

One of the general duties of the person in charge of works to ensure, inter alia that –

*MS(LV)(W)R
S.4(1)& 6(1)*

- (i) safe means of access is provided for the use by persons employed to pass :--
 - (a) between a local vessel and the shore, or
 - (b) between a local vessel and another vessel (regardless as to whether it is a local vessel); or
 - (c) between a local vessel and a place on land ; and

*MS(LV)(W)R
S 9(1c)*

- (ii) efficient lighting is provided at the means of access provided under s4 and s6 of the Regulations.

3.2 General duties of employer

*MS(LV)(W)R
S. 23(2)
S4(5)
S6(5)*

When the person in charge of works fails to carry out any of the general duties in paragraph 3.1 above, the employer of the persons employed shall take up the general duties to comply with the above requirements as soon as reasonably practicable after such failure.

3.3 Duties of works supervisor

*MS(LV)(W)R
S. 19 & 20*

For the purpose of supervising works carried out on, to, or by means of a local vessels, a person in charge of works may appoint a person as works supervisor in accordance with S.19 of the Regulation. It is the duty of a works supervisor appointed under S.19 of MS(LV)(W)R to assist the person in charge of works to carry out his general duties in paragraph 3.1 above.

3.4 General duties of person employed

MS(LV)R
S. 24

- 3.4.1 It is the general duties of a person employed at work to take reasonable care for the safety of himself and of other persons who may be affected by his acts or omissions.
- 3.4.2 It is the general duties of a person employed to co-operate with or assist a works supervisor to the extent necessary for enabling the works supervisor to perform duty imposed on him under s 20(1)(a) or (b) of the Regulation.
- 3.4.3 It is the general duty of a person employed to use the safe means of access provided to embark and disembark local vessels.

4. Embarkation and Disembarkation of Local Vessels

4.1 General

- 4.1.1 Before any works is carried out on local vessels, the person in charge of works must ensure that safe means of access between a local vessel and the wharf or between a local vessel and another vessel (regardless as to whether it is a local vessel) are provided and maintained for the use of the persons employed.
- 4.1.2 The equipment necessary to ensure safe means of access must be fit for the purpose, placed in the appropriate position promptly before commencement of the works and should be adequately illuminated and adjusted as necessary to maintain safe access.
- 4.1.3 The access equipment provided should be maintained in the appropriate position at all times when the persons employed require to use it, and should be regularly checked for its necessary adjustment to any rise or fall in tidal movement or freeboard change.
- 4.1.4 The means of access and its approaches should be free from obstruction and, as far as practicable, kept clear of any substance likely to cause a slip or fall.
- 4.1.5 The means of access should be sited so that no suspended load passes over it. Where this is not practicable, the access should be supervised by a person appointed by the person in charge of works at all times unless a clear notice is posted to give necessary warning in vicinity.
- 4.1.6 Any access equipment provided must be of good construction, sound material and adequate strength, and free from visible defect. All access equipment should be properly maintained and be inspected from time to time at appropriate intervals.
- 4.1.7 In the event of a means of access being unsafe for any reason and unable to be immediately removed from site, physical barriers should be erected and a clear warning notices prohibiting its use should be posted at every approach.
- 4.1.8 All overhead obstructions which are less than 2 metres above the gangways or at the approaches of safe access should be clearly

marked with a high visibility colour.

- 4.1.9 A lifebuoy with a buoyant safety line of 30 metres long should be available for use in vicinity for the access aboard the local vessels.
- 4.1.10 During inclement weather or rainy day, the person in charge of works should encourage the persons employed to wear lifejacket while embarking and disembarking to and from local vessel.
- 4.1.11 Where the safe means of access is made of wood, it should not be painted nor be treated in such a way that any cracks or defects are concealed. Transparent protective coating which does not render the access slippery may, however, be used for preservation purpose.

4.2 Access between Local Vessel and Shore or between Local Vessel and Place on Land

MS(LV)(W)R 4.2.1 If a local vessel is lying at a wharf, quay or place on land for the purposes of any works and the persons employed have to pass from the shore or a place on land to the local vessel or from the local vessel to the shore or a place on land, safe means of access shall, before the commencement of the works, be provided for use by the persons employed, unless having regard to the condition of the sea, the gap between the shore or place on land and the local vessel, and the difference in landing level between the shore or place and the deck of local vessel, it is safe for a person employed to pass from the local vessel to the shore or the place to the local vessel without aid of a ladder, gangway or similar construction as required under the Regulation.

S. 4(1)

4.2.2 Accommodation ladder or gangway appropriate to the deck layout, size, shape and maximum freeboard of a local vessel, which meets the detailed requirements in paragraph 4.4 below, may be used as a means of access between the local vessel and the shore.

MS(LV)(W)R 4.2.3 Where it is not reasonably practicable for a local vessel to be equipped with accommodation ladder or gangway, other safe means of access such as a fixed ladder or other similar construction designed for purpose of such access may be used, subject to the detailed requirements in paragraph 4.5 and provided that it is of sound material and adequate length and is properly secured to prevent its displacement. In some circumstances where the abovementioned means of access is not practicable, portable

or rope ladder may be provided, subject to the detailed requirements in paragraph 4.6 .

- 4.2.4 Where a local vessel having freeboard lower than the shore level is lying along a wharf or quay for carrying out works, safe means of access should be provided by the wharf or quay who has contracts in respect of the works. Such safe means of access could be a landing staircase, fixed ladder or other permanent construction of safe access. Rope ladder which meets the detailed requirements in paragraph 4.6 below may only be used where no safer means of access is reasonably practicable. It is preferably to arrange the low-freeboard vessel to berth alongside the quayside where permanent boarding facilities could have been provided. Where the above arrangements are not practicable, the wharf or quay who has contracts in respect of the works should make administrative measures to ensure that person employed or ship-crew of the vessel not to embark or disembark the local vessel during the process of works. For example, mooring lines or other chores can be handled by shore-labourers.
- 4.2.5 Where the wharf or quay fails to observe paragraph 4.2.4, the owner or coxswain of the local vessel, other persons having control over that local vessels, the relevant principal contractor or subcontractor, or employers of the persons employed shall ensure provisions of safe means of access.
- 4.2.6 Where local vessels having freeboard lower than the shore level are lying along the wharf or quay who has no contract in respect of the works carried out on, to or by means of these vessels, safe means of access should be provided by the person in charge of works, such as the coxswain of these local vessels, or other persons having control over these local vessels, or the relevant principal contractor or subcontractor, or the employers of the persons employed. In some circumstances where it is not reasonably practicable for the vessel to be equipped with an accommodation ladder or gangway, then rope ladder or portable ladder may be used, subject to the detailed requirements on those portable and rope ladders in paragraph 4.6 below.
- 4.2.7 Where a local vessel having freeboard higher than the shore level is lying along a wharf or quay for the purpose of any works, accommodation ladder, gangway or similar construction should be provided by the owner or coxswain of that local vessel, or other persons having control over that local vessel, or the relevant principal contractor or sub-contractor, or the employers of the persons employed. In some circumstances where it is not reasonably practicable for a vessel to be equipped with an

accommodation ladder or gangway, fixed ladder, rope ladder or portable ladder which meets the detailed requirements in paragraphs 4.5 and 4.6 below may be used.

- 4.2.8 Ramps for access of vehicles to local vessels should be of adequate strength, provided with side-boards at each side, and properly secured.
- 4.2.9 Ramps used by vehicles should not be used for pedestrian access unless there is suitable separation of vehicles and pedestrians.

4.3 Access to Local Vessel in Mid-stream or between Local Vessel and Any Other Vessel

- MS(LV)(W)R S.6(1)* 4.3.1 (i) If a local vessel is alongside any other vessel (regardless whether it is a local vessel) and the persons employed have to pass from one to the other for the purposes of any works, safe means of access shall be provided for their use.
- (ii) The requirements in paragraph 4.1 should be closely observed in relation to the proper provision of equipment for safe access, its proper condition and vigilance on possible risk...etc.
- MS(LV)(W)R S.6(2)* 4.3.2 (i) The vessel having the higher freeboard, whether it is a local vessel or not, is primarily responsible for the provision for use by persons employed with safe means of access. The coxswain of a local vessel having lower freeboard should notify their need of boarding from their vessel to the vessel of higher freeboard.
- (ii) Where the vessel, whether it is a local vessel or not, having a higher freeboard fails to provide safe means of access, the owner or coxswain of the local vessel having lower freeboard, the persons in charge of works, the relevant principal contractor or subcontractor, or the employers of the persons employed shall instruct the persons employed not to embark or disembark vessels until a safe means of access is provided.
- (iii) Where two vessels (one or both of them is/are local vessel(s)) have near even freeboard (Note 1), either vessel should provide safe

means of access, unless having regard to the condition of the sea, the gap between the vessels, and the deck levels of the vessels, it is safe for a person employed to pass from one vessel to the other without the aid of an accommodation ladder, gangway or similar construction as required from the Regulation. The person in charge of works should ensure that the relevant conditions such as access passage, weather and sea conditions are permissible for passing by the persons employed without undue risk and he should

(a) provide clear safety instructions and direct close supervision, on site, to the persons employed who may need to pass from one vessel to the other, or

(b) ensure to display a conspicuous safety caution notice in close vicinity of the access passage with the content as below: -

“SAFETY CAUTION:--

Be careful when crossing.

Beware of slippery and sudden movements of vessels.”

Whenever the above specific conditions do not warrant safe access by the person employed, the person in charge of works should ensure the removal of the above safety caution notice and other appropriate safe means of access which satisfies the requirements in the Regulation should be arranged.

MS(LV)(W)R
S. 6

(iv) Where two dumb steel lighters (one or both of them is/are local vessel(s)) having near even freeboard (Note 1) are moored side by side and an access passage athwart two lighters may be formed by two large-sized rubber tyres (of the diameter not less than 1.8m and the width not less than 0.36m) at the near same level (Note 2) and with their corresponding positions in proper alignment, this passage could be considered as safe means of access provided that regular checks are made by the person in charge of works to ensure that the above condition are met and the tyres surfaces used for the access passage remained dry and non-slippery and weather and sea conditions are permissible for the persons employed to and from either side of the lighter without undue risk and he should

(a) provide clear safety instructions and direct close supervision, on site, to the persons employed who may need to pass from one vessel to the other, or

(b) ensure to display a conspicuous safety caution notice in close

vicinity of the access passage with the content as below: -

“SAFETY CAUTION:--

Be careful when crossing.

Beware of slippery and sudden movements of vessels.”

Whenever the above specific conditions do not warrant the use of those rubber tyre surfaces as safe access by the persons employed, the person in charge of works should ensure the removal of the above safety caution notice and other appropriate safe means of access which satisfies the requirements in the Regulation should be arranged.

Note 1: “near even freeboard” means the freeboard level difference is not more than one foot-step (ie. 300mm).

Note 2: “near same level” means the level difference is not more than one foot-step (i.e. 300 mm)

- 4.3.3 If a local vessel is lying at mid-stream for the purposes of any works and the persons employed are transported by a launch or boat to board the local vessel, safe means of access should be provided by the person in charge of works.
- 4.3.4 Accommodation ladder or gangway appropriate to the deck layout, size, shape and maximum freeboard of local vessel which meets the detailed requirements in paragraph 4.4 below, may be used as a safe access. For details of accommodation ladder and gangway, please see paragraph 4.4 below.
- 4.3.5 Where it is not reasonably practicable for a vessel to be equipped with an accommodation ladder or gangway, or any other similar construction, subject to the detailed requirements in paragraphs 4.5 and 4.6 below, other safe means of access, e.g. fixed ladder, rope ladder, or portable ladder may be used, provided that it is of sound material and adequate length and properly secured to prevent its displacement.

4.4 Accommodation Ladder and Gangway

4.4.1 Accommodation ladder or gangway equipped by the local vessel should be suitable to the local vessel design, and maintained in safe condition.

4.4.2 The angle of inclination of the accommodation ladder should be kept within the limits at which it was designed. Accommodation ladders should not be used at an angle of inclination greater than 55° from the horizontal, and gangways should not be used at an angle greater than 30° from the horizontal, unless specially designed for greater angles.

MS(LV)(W)R
S. 4(2)(a)(b)
S. 6(3)(a)(b)

4.4.3 According to the MS(LV)(W)R, an accommodation ladder or a similar construction equipped by the local vessel should be –

(i) if the vessel is equipped with an accommodation ladder or a similar construction, of which one side is properly protected by the vessel's side, and the ladder or the construction is--

- (a) at least 550 mm wide;
- (b) properly secured to prevent its displacement;
- (c) constructed of materials of good quality and in good condition;
- (d) securely fenced, throughout on the other side that is not so protected, to a clear height of not less than 820 mm, either by means of upper and lower rails, taut ropes chains or by other equally safe means; and

(e) of adequate length.

(ii) if the vessel is equipped with an accommodation ladder or a similar construction, of which neither side is properly protected by the vessel's side, and the ladder or the construction is—

- (a) at least 550 mm wide;
- (b) properly secured to prevent its displacement;
- (c) constructed of materials of good quality and in good condition;

- (d) securely fenced, throughout on each side, to a clear height of not less than 820 mm, either by means of upper and lower rails, taut ropes chains or by other equally safe means; and
- (f) of adequate length.

MS(LV)(W)R 4.4.4
S. 4(2)(c)
S.6(3)(c)

According to the MS(LV)(W)R, a gangway or a similar construction equipped by a local vessel should be –

- (i) not less than 550 mm wide;
- (ii) properly secured to prevent its displacement;
- (iii) constructed of materials of good quality and in good condition;
- (iv) securely fenced, throughout on each side, to a clear height of not less than 820 mm, either by means of upper and lower rails, taut ropes or chains or by other equally safe means; and
- (v) of adequate length.

4.4.5 When the inboard end of a gangway rests on or is flush with the top of a bulwark, suitable stairway or ladder leading from the bulwark onto the deck should be provided between the top of bulwark and the deck with a handrail at least 820 mm high or with other handhold fixture.

4.4.6 Gangways and other access equipment should not be rigged on vessel's rails unless the rail has been reinforced for that purpose.

4.5 Fixed Ladders

MS(LV)(W)R 4.5.1
S.4(3)

Where it is not reasonably practicable for a vessel to be equipped with an accommodation ladder or gangway or any other construction similar to accommodation ladder or gangway, a fixed ladder or other similar construction may be used for access to or from local vessel provided that it is of sound material and adequate length and is properly secure to prevent its displacement. Where a fixed ladder is used, it is preferably to use a hand-rope hanging from the point of access to the bottom of the ladder to

facilitate the persons employed moving between the ladder and adjacent vessel or landing.

- 4.5.2 The hand-rope should have a diameter adequate for handgrip. It should be approximately the same length as the ladder.
- 4.5.3 A fixed and permanent ladder or any similar construction used as a means of access should be of rigid and permanent structure with adequate strength. The design should be provided with proper handgrips and footholds.
- 4.5.4 The top end of ladder should be provided with stanchions of not less than 1000 mm high at the upper landing place unless there are other suitable handgrips.
- 4.5.5 When a fixed and permanent ladder or similar construction is used for embarking and disembarking local vessels : –
 - (i) It should be so placed as to afford a clearance of at least 115 mm behind the rungs for footholds; and
 - (ii) The steps must be horizontal and equally spaced at interval between 250 mm and 360 mm for users to climb up or down safely. The width of a ladder should be at least 400 mm.

4.6 Portable and Rope Ladders

- MS(LV)(W)R* 4.6.1 Where it is not reasonably practicable for a vessel to be equipped with an accommodation ladder or gangway or any other construction similar to accommodation ladder or gangway, a portable or rope ladder, which is of sound material and adequate length and is properly secured to prevent its displacement, should only be used for access to local vessel where no safer means of access is reasonably practicable. Where any of these ladders is provided, it is preferably to use a hand-rope hanging from the point of access to the bottom of the ladder to facilitate the persons employed moving between the ladder and adjacent vessel or landing.
- S. 4(3)*
- 4.6.2 The hand-rope should have a diameter adequate for handgrip. It should be approximately the same length as the ladder.
 - 4.6.3 A portable ladder or rope ladder should never be secured to rails or to any other means of support unless the rails or support are so constructed and rigid as to take the weight of a man and a ladder

with an ample margin of safety.

- 4.6.4 A portable ladder or rope ladder used as a means of access should be of good construction, sound material, adequate strength and properly maintained. The design should be provided with proper handgrips and footholds.
- 4.6.5 The top end of ladder should be provided with stanchions of not less than 1000 mm at the upper landing place unless there are other suitable handgrips.
- 4.6.6 When a portable ladder is used for embarking and disembarking a local vessel –
- (i) its top end should be firmly secured to prevent from twisting, tilting or overturning. Its bottom end should be ensured free from smashing or crushing on the sea-wall or adjacent vessel due to tidal movement;
 - (ii) it should be so placed as to afford a clearance of at least 115 mm behind the rungs for footholds;
 - (iii) the steps must be horizontal and equally spaced at interval between 250 mm and 360 mm for users to climb up or down safely. The width of a ladder should be at least 400 mm; and
 - (iv) the length of portable ladders should be adequate for safe access purpose, but not exceed 3 m unless both top and bottom ends are firmly secured.
- 4.6.7 Where a rope ladder is provided, it must be of adequate length and so constructed that it can be efficiently secured to the vessel and it must meet the following standards -
- (i) rope ladder of rectangular rung must be slip-resistant with a depth of at least 115 mm to afford footholds and must be so secured that they are firmly held against twisting, overturning or tilting;
 - (ii) rope ladder of round rung should only be used if the rectangular rung ladder is not available onboard. If 'round rung' rope ladder is used, it should be so placed as to afford a clearance of at least 115 mm behind the rungs for footholds;
 - (iii) the rung must be horizontal and equally spaced at interval between 250 mm and 360 mm for users to climb up or

- down safety. The width of a ladder should be at least 400 mm;
- (iv) the side ropes of ladder should have sufficient strength;
 - (v) there should be no shackles, knots or splices between rungs;
 - (vi) rope ladder should be fitted with spreaders at intervals not greater than 9 rungs apart. The lowest spreader must be on the fifth rung from the bottom. The length of spreader should be long enough to prevent ladder's twisting due to its extraordinary length;
 - (vii) 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 when not in use. It should not be left so that any slack will suddenly pay out when the ladder is used;
 - (viii) length of a round rung rope ladder should not exceed 4 metres. Length of the rectangular rung ladder should not exceed 9 metres; and
 - (ix) where the freeboard of a vessel is 9 m or more, a rectangular rung ladder should be used in conjunction with an accommodation ladder, positioned in such a way as to provide safe and easy access from the rope ladder to the bottom platform. The rectangular rung ladder should extend at least 2 metres above the accommodation ladder's bottom platform.

4.7 Other Boarding Equipment

4.7.1 Other boarding equipment that has not been mentioned in this Code but designed and constructed as suitable for safe embarking and disembarking purposes may also be acceptable, provided that the conditions in section 4(2) of MS(LV)(W)R are satisfied. For examples:--

- (i) Man cage could be used as a safe means of access to local vessel and should be robustly constructed and fenced by metal railings. Upper railing is preferably 1000 mm high and middle railing 500 mm from the bottom of the cage. Toe boards of about 200 mm. Door or gate should be open inwards and equipped with safety interlock. Maximum permissible passengers' weight and maximum number of

passengers carried should be labelled on the cage.

- (ii) Floating landing pontoon or landing platform could be used as a safe means of access between the local vessel and the shore. It should be properly designed for the landing purpose. A notice board for the maximum allowable passengers on transit to be installed on board or adjacent to landing area. Attention is drawn that licence should be obtained from Marine Department before use of floating landing pontoon or landing platform.
- (iii) Any safety net properly designed for the purpose, e.g. Jason's Cradle, could be used as a safe means of access. The safety net should be regularly inspected and well maintained in good condition. It should be firmly fixed at the upper end to prevent any inadvertent movement.

4.8 Lighting

- MS(LV)(W)R* 4.8.1 Where works are carried out on a local vessel, every means of access under *MS(LV)(W)R* section 4 and 6 shall be efficiently lighted having regard to the safety of the vessel and cargo concerned, the person employed and the navigation of any other vessel.
S. 9(1)(c)
- 4.8.2 The boarding equipment and the immediate approaches to it should be effectively illuminated from the vessel or the shore to at least a level of 20 lux, as measured at height of 1 metre above the surface of the means of access or its immediate approaches.
- 4.8.3 Lighting should be reasonably constant and arranged to minimize glare and dazzle, the formation of deep shadows and sharp contrasts in the level of illumination between one area and another.
- 4.8.4 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, or hitting onto the fittings. Any slack in the leads should be coiled. The leads should be kept clear of possible causes of damage. Portable lights should never be suspended by their leads.
- 4.8.5 Where portable or temporary lighting has to be used fittings and leads should be safe and suitable 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. The use of earthed direct current power supply of voltage under 110 volts would be comparatively safer.

APPENDIX I

Reference

- A1.1 Accident prevention on board ship at sea and in port, International Labour Office, Geneva
- A1.2 Code of safe working practices for merchant seamen, Maritime and Coastguard Agency, UK
- A1.3 Guide to Safety and Health in Dock Work, International Labour Office, Geneva
- A1.5 Shipbuilding and Ship-Repairing Safety Guide, Marine Department, HKSAR
- A1.6 《船上貨物裝卸安全指南》(Stevedoring Safety Guide), Marine Department, HKSAR

APPENDIX II

Photos

Photo 1 --- Accommodation ladder and Pilot Ladder



Photo 2 --Rope Ladder



Photo 3 -- Gangways



Photo 4 – Pier Ladders



Photo 5 – Jason’s Cradle

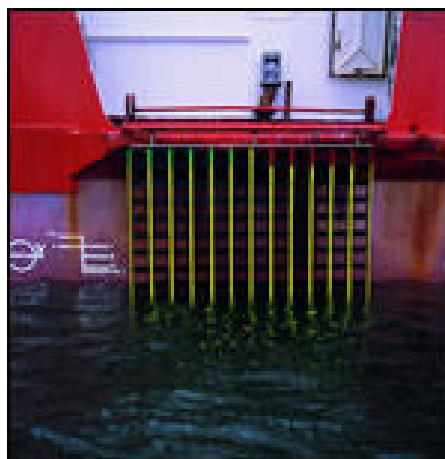


Photo 6 --- Man Cage

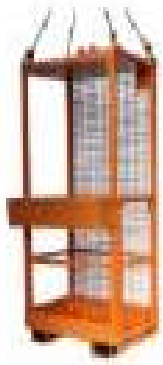


Photo 7 --- Portable ladder with two legs of horizontal protrusions providing sufficient space (at least 115 mm) for footholds



Photo 8 – Rope ladder with standoff bracket to provide sufficient space (at least 115mm) for footholds



Photo 9 –Fixed ladders on lighters



(Note: It is the industry’s request to produce the above photos, which is for reference only. The Person-In-Charge of Works should provide suitable safety means of access according to ship’s layout.)