

INDIAN REGISTER OF SHIPPING

CLASSIFICATION NOTES

Guidelines for Approval / Acceptance of Alternative Means of Access to Spaces in Oil Tankers, Bulk Carriers, Ore Carriers and Combination Carriers

August 2006



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Guidelines for Approval / Acceptance of Alternative Means of Access to Spaces in Oil Tankers, Bulk Carriers, Ore Carriers and Combination Carriers

1. Introduction

Classification rules require that each space in the cargo area and forward spaces in oil tankers of 500 GT and over and bulk carriers, ore carriers and combination carriers of 20,000 gross tons and over, are to be provided with means of access to enable, throughout the life of the ship, overall and close-up inspections and thickness measurement of the ships structures.

Where a permanent means of access may be susceptible to damage during normal cargo loading and unloading operations or where it is impracticable to fit permanent means of access, provision of movable or portable means of access may be considered, provided the means of attaching, rigging, suspending or supporting these alternative means of access form a permanent part of the ship's structure. Such alternative means of access can be used independently or in combination with the provided permanent means of access.

This classification note gives guidance for the approval and acceptance prior to use of such alternative means of access, which are to be clearly identified in the approved Ship Structure Access Manual.

2. Definitions

2.1 *Approved* means that the construction and materials of the means of access and any attachment to the ship's structure are to the satisfaction of IRS.

2.2 *Acceptance* : The means of access are to be accepted by the Surveyor prior to its use subject to verification of the records of maintenance and satisfactory condition.

2.3 *Alternative means of access* is a term for portable or movable means of access provided for the overall and close-up surveys and thickness measurements of hull structure in areas otherwise not accessible by permanent means of access. For the purpose of this classification note, alternative means of access include supplementary or additional means to provide necessary access for surveys and thickness measurements.

2.4 *Portable means of access* are means that generally may be hand carried or arranged by the crew, e.g. ladders, small platforms and staging. Portable means specified as part of the Ship Structure Access Manual should be carried onboard the ship throughout the duration of the validity of the relevant access manual.

2.5 *Movable means of access* may include devices like a ‘cherry picker’, wire lift platforms, rafts or other means. Unless otherwise specified, such means need not necessarily be kept on board or capable of being operated by the ship’s crew. However, arrangements for the provision of such means should be addressed during survey planning. Movable means of access should be included in the Ship Structure Access Manual to indicate the extent of access to the structural members to be surveyed and measured.

2.6 *Authorised person* is a specified shipowner’s / operator’s person using the means of access who should assume the role of inspector and check for obvious damage prior to using the access arrangements.

3. General

3.1 It is recognized that permanent means of access specified in the Rules may not give access to all areas required to be surveyed and measured. Therefore, it is necessary that all areas outside of reach (i.e. normally beyond hand’s reach) of the permanent means of access should be accessed by alternative means in combination with the permanent means of access.

3.2 Means of access, including alternative means of access, specified in the Rules together with the Ship Structure Access Manual are to be approved. Any limitations to the use of the equipment at sea or in port should be described in the approved Ship Structure Access Manual.

3.3 It should be demonstrated as part of the initial survey, that the means of access identified in the Ship Structure Access Manual provides the required access, prior to delivery for the first ship in the series, or prior to initial use of a Ship Structure Access Manual where an existing means of access is amended or a new means of access is added.

3.4 Where movable means of access are supplied by a shore-based provider, then the confirmation of its safe and adequate use should be made by the Owner based on recorded maintenance and inspection regime by the provider of the equipment. Cognisance should be taken of the complexity of the equipment when making the judgement on the periodicity of inspections and thoroughness of maintenance by the provider of equipment. The documentation and condition of equipment are to be to the satisfaction of the Surveyor.

3.5 Prior to using the means of access the authorised person should verify the condition of the sections used by close-up examination and note any deterioration in the provisions. Should any damage or deterioration be found, the effect of such deterioration should be assessed as to whether it affects the safety for continued use of the means of access. When deterioration is found which may affect the safe use of the means of access, measures are to be put in place to ensure that the affected sections are not used without effective repair.

3.6 It should be demonstrated by the Owner that the equipment provided has been maintained and a person operating the equipment is trained in the safe use of such equipment. These should be demonstrated to the Surveyors by the production of documents, prior to the equipment being used. Any limitations of the equipment are to be indicated in the documents.

3.7 The records of training, inspections and maintenance should be established in accordance with requirements of the Ship's Safety Management System.

3.8 Any other proposal of innovative alternative means of access would be specially considered on case by case basis.

4. Alternative Means of Access

4.1 Hydraulic arm vehicles ("Cherry Picker")

4.1.1 Application

Hydraulic arm vehicles or aerial lifts (Cherry Picker) may be used to enable the examination of the cargo hold structure on bulk carriers not accessible by permanent ladders. In the Ship Structural Access Manual the Cherry Pickers may be accepted as movable means, for use up to 17 m above the tank top.

4.1.2 Safety routines

The shipowner/operator is responsible for ensuring that moveable means of access are suitable for the purpose of the appropriate use. The equipment should be operated by qualified personnel and evidence should be provided that the equipment has been properly maintained by a shore based provider. The standing platform should be fitted with anchor points for attaching fall arrest systems. For equipment provided with a self leveling platform, care should be taken that the locking device is engaged after completion of manoeuvring to ensure that the platform is fixed.

Safety measures, including the following, are to be taken by an authorized person prior to survey to the satisfaction of the attending surveyor(s):

- Lift controls, including safety devices should be serviceable and should be operated throughout the range prior to use. Operators should be trained.
- The equipment range of use should be agreed with the operator before using the equipment.
- Operators should work within the basket.
- Body belts (such as harnesses) with lanyards should be used.
- Permissible load and reach limitations are not to be exceeded.
- Brakes are to be set; outriggers used, if so equipped and wheels chocked if on an incline.

- Unless designed otherwise, aerial lift trucks should not be moved when the boom is elevated in a working position with workers in the basket.
- Upper and lower controls are to be provided and should be plainly marked. Lower controls should be capable of overriding the upper controls.
- Special precautions should be made to ensure the vessel and the lifting device are stable when aerial lifts are used on other vessels (for example barges, floats).
- Personal floatation devices (PFD) should be used when working over water.
- Caution should be taken for potential crushing hazards (for example booming into the overhead, pinch point).

The operation and training in the use of this type of equipment should be addressed by the Ships Safety Management System.

4.2 Wire lift platform

4.2.1 Application

Wire lift platforms may be used for inspection of structural members of ballast tanks, cargo oil tanks and cargo holds. If carried on board and included in the Ship Structural Access Manual, the designer will have to take into consideration safety aspects associated with deployment and use of such means of access. The platform and equipment, including fixed points to the ships structure should be approved, based on a recognized International or National Standard.

The following should be considered during approval of the wire lift platform:

- a) Accidental loss of balance;
- b) Protection against overload;
- c) Secondary means of escape;
- d) Guard rails;
- e) Permissible loads;
- f) Permanent markings of the permissible loads and maximum number of personnel;
- g) Recovery in the event of power loss.

4.2.2 Safety routines

Adequate safety measures should be taken by an authorized person prior to survey to the satisfaction of the attending surveyor(s). These are to include:

- Rigging of wires should be in accordance with manufacturer's recommendations and conducted by qualified personnel.
- Fix points to which the wires will be connected should be examined before each use and verified as in good condition (free of wastage, fractures).

- Means should be provided for using fall protection with a lifeline that can be tended from above the platform.
- The maintenance of all equipment, the rigging of the equipment, its testing, operation and training in use should be addressed by the Ships Safety Management System.

4.3 Portable platforms

4.3.1 Application

Portable platforms not more than 3 m length may be used for access between longitudinal permanent means of access and the structural member to be accessed. (See Fig.1). Handrails should be provided, unless a safety harness is used in conjunction with the prearranged handgrips in way of the structure being accessed.

Portable platforms may be used as a portable means of access, provided that the platform and equipment, including fixed points to the ship's structure are specifically designed for the task and approved based on a recognized International or National Standard.

Where portable platforms are included in the approved ship structure access manual, the following should be considered during their approval:

- a) Permissible loads,
- b) Permanent markings of the permissible loads and maximum number of personnel,
- c) Fixing arrangements,
- d) Guard rails,
- e) Non skid construction.

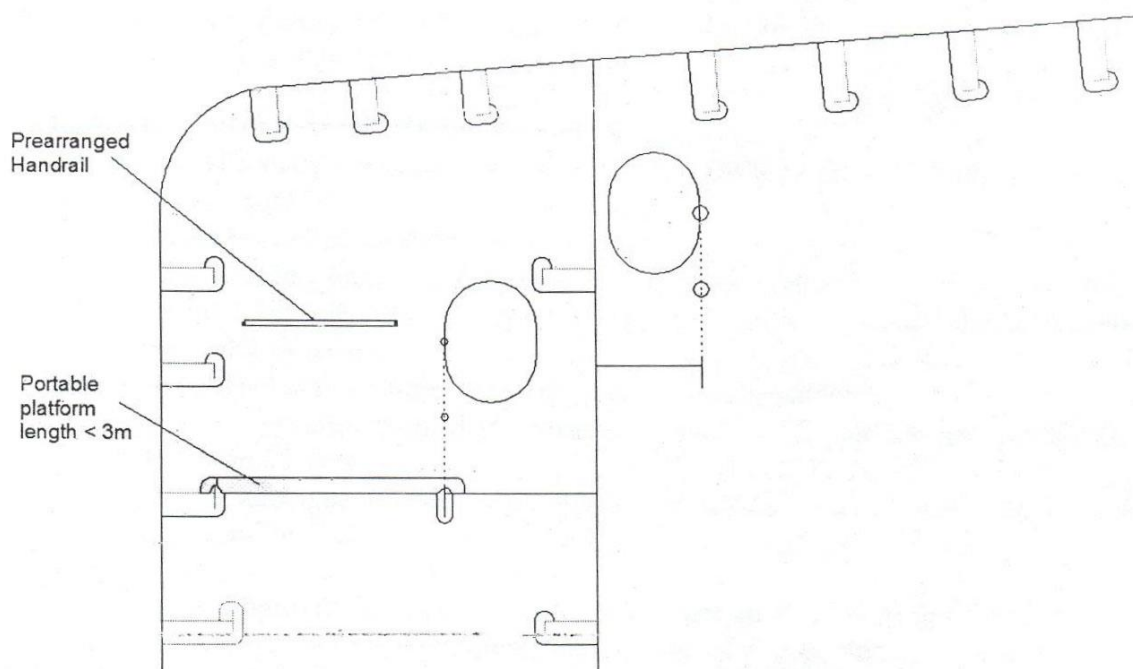


Fig. 1 Portable Platform

4.3.2 Safety routines

Safety measures should be taken by the authorised person prior to survey to the satisfaction of the attending surveyor(s). This should include ensuring that portable platforms are safely secured and supported prior to use.

The maintenance of all equipment, the fixing of the equipment, its testing, operation and training in use should be addressed by the Ships Safety Management System.

4.4 Staging

4.4.1 Application

Staging is the most common means of access provided especially where repairs or renewals are being carried out. Staging is generally an option for access to any structural members to be surveyed and measured in tanks, holds and spaces but is NOT considered as an alternative to permanent means of access for providing:

- access to bulk carrier hold frames (See item 1.7 of Table 1.7.2b of Pt.5, Ch.1)
- continuous longitudinal permanent means of access which are integrated in the structural member on the stiffened surface of a longitudinal bulkhead for access to transverse webs in oil tankers (item 1.4 of Table 2.4.2b) of Pt.5, Ch.2).

Staging not carried on board is not subject to approval. In this case, Owner and/or provider of equipment are responsible for ensuring safe use.

Where staging and the associated equipment including its attachments to the ship's structure are specifically designed for survey and thickness measurement, such staging should be approved based on a recognized International or National Standard and necessary measures for the safety in use.

4.4.2 Safety routines

Safety measures, including the following, should be taken by an authorised person prior to survey to the satisfaction of the attending surveyor(s):

Before working on or near any staging the following are to be ensured:

- A minimum of 6 evenly spaced suspension points are to be provided by steel wire rope or chains evenly spaced and as near vertical as possible;
- Scaffold tubes are linked by right-angle couplers;
- An adequate working platform, fully boarded with toe boards and guard rails, is provided. Platform transoms (at 1.2 m intervals) resting on ledgers (supported at 2.5 m interval) and double transoms at platform board overlaps;
- The staging is level and provided with safe access (such as ladders);
- The staging is adequately decked (for example have a work surface and platform) and provided with guardrails;
- The staging is adequate for the work performed taking into account that falls are a significant hazard in site.

Where staging is approved as a part of the Ship Structure Access Manual and carried on board, the maintenance of all equipment, the rigging of the equipment, its operation and training in its use should be addressed by the Ships Safety Management System.

4.5 Rafting

4.5.1 Application

Rafting is generally used as term for surveys carried out by means of boats or rafts. Rafting may be an option for use in tanks, holds and spaces which may be filled with water provided the arrangement of internal structure are as described in this section.

The structure arrangement should allow easy escape to deck from any position being rafted. At least 1.0 m clearance above and 0.5 m clearance beyond the breadth of the raft should be allowed for the safe passage across any internal obstructions.

Bulk Cargo Holds

For bulk cargo holds designed for filling of water (e.g. ballast holds) and where filling up to a height not less than 2 m below top of side frames is permitted (e.g. air draft holds), rafting may be utilized in lieu of permanent means of access to side frames provided the structural capacity of the hold is sufficient to withstand static and dynamic loads including sloshing loads at all levels of water needed to survey the side shell frames.

Oil Cargo Tanks

Rafting of cargo tanks is subject to restrictions on discharging of water in harbour and weather conditions at voyage. Rafting as alternative means of access should therefore not be considered as “readily accessible” in oil cargo tank and do not provide an alternative to fitting of longitudinal permanent means of access as required by 1.4 of Table 2.4.2b of Part 5, Chapter 2 of Main Rules.

It may be noted that classification rules allows rafts or boats alone for survey of the under deck areas for tanks or spaces if the depth of the webs is 1.5 m or less. If the depth of the webs is more than 1.5 m, rafts or boats alone may be allowed only if a permanent means of access is provided in each bay to allow safe entry and exit. This means:

- a) access direct from the deck via a vertical ladder and small platform about 2 m under deck; or
- b) access to deck from a longitudinal permanent platform having ladders to deck in each end of the tank. The platform should, for the full length of the tank, be arranged in level with or above maximum water level needed for rafting of under deck structure. The maximum water level should be assumed not more than 3 m from deck plate measured at the midspan of deck transverses and in the middle length of the tank. (See Fig.2)

4.5.2 Safety routines

Safety measures should be taken by an authorised person prior to survey to the satisfaction of the attending surveyor(s). The construction and safety features of the raft are to be acceptable to the surveyors.

The procedures for the surveys by the means of rafting, its operation and training in use should be addressed by the Ships Safety Management System.

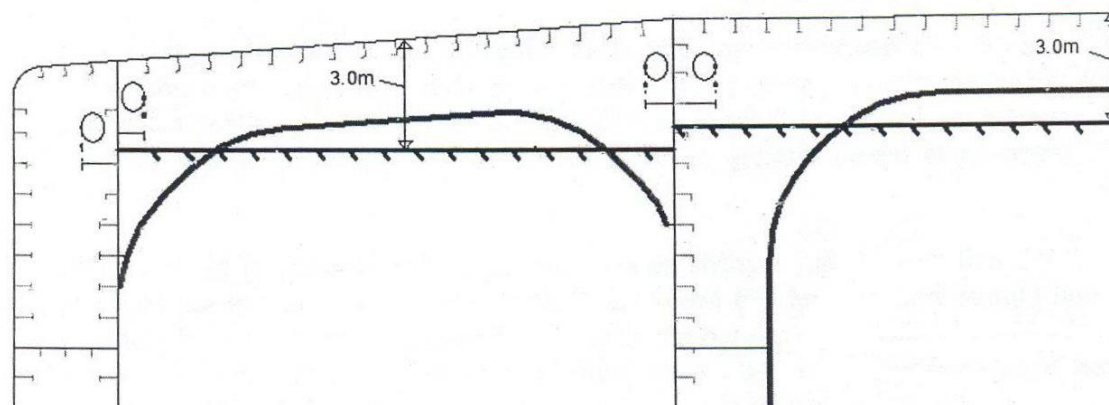


Fig.2 Use of Rafts/Boats

4.6 Portable ladders

4.6.1 Application

Portable ladders may be used for access to any structural members as supplementary and/or additional means to the permanent means of access and these are to be included in the Ship Structure Access Manual.

Portable ladders are to be designed based on a recognized International or National Standard. The rungs and steps of portable ladders are to be designed to minimize slipping, e.g. corrugated, knurled, dimpled or coated with skid resistance material.

Step ladders, hanging ladders and ladders more than 5 m long may only be utilized if fitted with a mechanical device to secure the upper end of the ladder.

4.6.2 Safety routines

Safety measures are to be taken by an authorized person prior to survey to the satisfaction of the attending surveyor.

The feet of portable ladders are to be prevented from slipping during use by securing the stiles at or near their upper and lower ends, by any anti-slip device or by other arrangements of equivalent effectiveness. Unless otherwise specified in a specification of each portable ladder or relevant safety standards, the ladder should be in general raised at an angle of around 70 degrees. (See Fig.3).

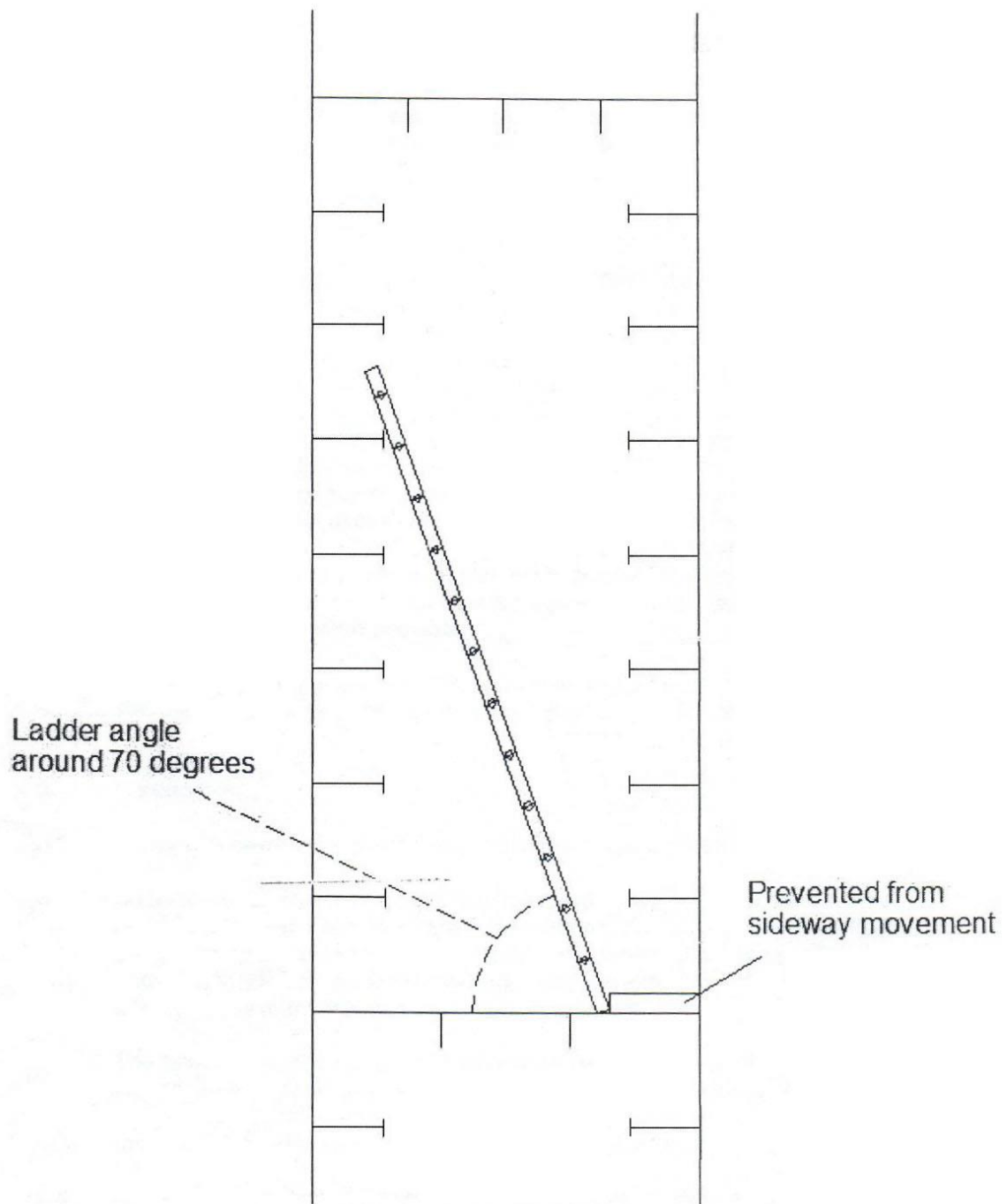


Fig.3 Use of Portable Ladder

Portable ladders are to be used on top of a bottom or deep stringer platform only where the free falling height does not exceed 6 m. If it is necessary to exceed this height, there should be at least 3 m of water above the highest structural element in the bottom to provide a “cushion” or a safety harnesses is to be used. The free falling height above the water surface should not exceed 6 metres.

When climbing ladders in tanks containing water, the surveying personnel should wear “flotation” aids. A flotation aid is a simple form of lifejacket which does not impede climbing or a self-inflatable lifejacket.

Aluminium ladders may be used in cargo tanks, but cannot be stored in the cargo area or other gas dangerous spaces.

The maintenance of all equipment, the securing of the equipment, its operation and training in use should be addressed by the ships Safety Management System.