

GUIDE FOR THE CLASS NOTATION

HELICOPTER DECKS AND FACILITIES (HELIDK AND HELIDK(SRF))

APRIL 2008

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The following summarizes the colors corresponding to Rule Changes, Corrigenda items and editorial changes in the Guide files which are available for download.

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ABS Plaza
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Foreword

ABS currently has requirements for design of helicopter decks and helicopter facilities in several Rules and Guides, including the *Rules for Building and Classing Steel Vessels*, the *Rules for Building and Classing Steel Vessels Under 90 meters (295 feet) in Length*, the *Rules for Building and Classing Mobile Offshore Drilling Units*, the *Rules for Building and Classing Steel Barges*, and the *Guide for Building and Classing Liftboats*.

This Guide consolidates the above requirements for easy application of the Rule requirements for the optional notations **HELIDK** and **HELIDK(SRF)**. For convenience, an easy-to-follow road map for classification of helicopter decks and helicopter facilities is also provided (see Appendix 1).



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SECTION 1 Introduction

1 Scope

This Guide covers design, systems and survey criteria for helicopter decks and facilities on vessels and mobile offshore drilling units classed with ABS.

This consolidated Guide is applicable for helicopter decks and facilities for the following Rules and Guides:

- *Rules for Building and Classing Steel Vessels* (3-2-11/11, 4-6-7/9, 4-7-2/5.3, et al.)
(Steel Vessel Rules)
- *Rules for Survey After Construction* (7-3-2/1.1.11, 7-6-2/1.1.10, et al.)
- *Rules for Building and Classing Steel Vessels Under 90 meters (295 feet in Length) (Under 90m Rules)* (3-2-9/11, 4-4-8/3, 4-5-1/7, et al.)
- *Rules for Building and Classing Mobile Offshore Drilling Units (MODU Rules)* (3-2-2/3, 4-2-6/7, 5-2-3/9, 6-2-4/1, 6-2-4/7, et al.)
- *Rules for Building and Classing Steel Barges* (Section 3-2-11, et al.)
(Barge Rules)
- *Guide for Building and Classing Liftboats* (3-2-11/5, 4-5-7/1, 4-6-1/7, et al.)
(Liftboat Guide)
- *Rules for Building and Classing Offshore Installations*
- *Rules for Building and Classing Facilities on Offshore Installations*
- *Guide for Building and Classing Offshore LNG Terminals*

See also the flowcharts in Appendix 1 for a detailed map of the above requirements.

3 Application

This Guide is applicable to helicopter decks and helicopter facilities on steel vessels of all lengths, steel barges, mobile offshore drilling units, and liftboats.

Vessels in compliance with this Guide will be assigned the following notations:

- Vessels with a helicopter deck intended for landing with no provision for storage or refueling and complying with Sections 2 and 6 of this Guide will be assigned the notation **HELIDK**.
- Vessels with a helicopter deck and a helicopter facility for storage and/or refueling and complying with Sections 2 through 6 of this Guide will be assigned the notation **HELIDK(SRF)**.

5 Definitions

Helicopter Deck (Helideck) – a purpose-built helicopter landing area, on a vessel or unit including all structure, fire fighting appliances and other equipment necessary for the safe operation of helicopters, but not those areas for occasional or emergency helicopter operations (e.g., circle H marked on hatch covers for drop-off/pickup of pilot).

Helicopter Facility – a helideck including any refueling and hangar facility.

7 Submission of Design Plans and Data

7.1 Structural Plans (2011)

Plans showing the arrangement, scantlings and details of the helicopter deck are to be submitted for review and approved before the work of construction is commenced.

- These plans are to clearly indicate the scantlings, structural details and welding, or other methods of connection.
- The arrangement plan is to show, in both plan view and elevation, the overall size of the helicopter deck and the designated landing area. If the arrangement provides for the securing of a helicopter or helicopters to the deck, the predetermined position(s) selected to accommodate the secured helicopter, in addition to the locations of deck fittings for securing the helicopter, are to be shown.
- The type of helicopter to be considered is to be specified and calculations for appropriate loading conditions are to be submitted.

Plans should generally be submitted electronically to ABS. However, hard copies will also be accepted.

7.3 Machinery and Systems Plans

In addition to the above, for helicopter facilities for storage and refueling of helicopters, the following plans are to be submitted:

- Helicopter refueling system, fuel storage tank and its securing and bonding arrangements
- Helicopter operations fire fighting system (where applicable)

7.5 Operation Manual

Each helicopter facility is to have an operation manual, specifying a description and a checklist of safety precautions, procedures and equipment requirements. This manual may be part of the Operation Manual for the vessel, mobile offshore drilling unit or liftboat, as applicable.

SECTION 2 Structural Design and Safety Criteria

1 General

Helicopter decks are to meet the following structural and safety requirements. The attention of Owners, builders and designers is directed to various international and governmental regulations and guides regarding the operational and other design requirements for helicopters landing on vessels or units.

3 Helicopter Deck Loading

Scantlings of helicopter decks and supporting structure are to be determined on the basis of the following loading conditions, whichever is greater, in association with the allowable factors of safety shown in Section 2, Table 1. Plastic design considerations may be applied for deck plating and stiffeners.

Scantlings of helicopter decks and supporting structures are to be such that the resulting stress in members does not exceed:

$$Y/F_s$$

where

Y = specified minimum yield point or yield strength of the material

F_s = factor of safety, as given in Section 2, Table 1

3.1 Overall Distributed Loading

For platform type helicopter decks, minimum distributed loading of 2010 N/m² (205 kgf/m², 42 lbf/ft²) is to be taken over the entire helicopter deck.

For all other helicopter decks provided on part of the vessel's structure deck (e.g., deckhouse/ superstructure top or strength/weather deck), the minimum weather load as specified for each type of vessel is also to be applied (see also 2/3.11).

3.3 Helicopter Landing Impact Loading

A load of not less than 75% of the helicopter maximum take-off weight is to be taken on each of two square areas, 0.3 m × 0.3 m (1 ft × 1 ft). Alternatively, the manufacturer's recommended wheel impact loading will be considered. The deck is to be considered for helicopter landings at any location within the designated landing area. The structural weight of the helicopter deck is to be added to the helicopter impact loading when considering girders, stanchions, truss supports, etc. Where the upper deck of a superstructure or deckhouse is used as a helicopter deck and the spaces below are normally manned (quarters, bridge, control room, etc.), the impact loading is to be multiplied by a factor of 1.15.

TABLE 1
Allowable Factors of Safety Based on Y for Helicopter Decks

Y = specified minimum yield point or yield strength of the material as defined in 2-1-1/13 of the ABS Rules for Materials and Welding (Part 2)

	<i>Plating</i>	<i>Beams</i>	<i>Girders, Stanchions, Truss Supports, etc. (See Note 3)</i>
Overall Distributed Loading	1.67	1.67	1.67
Helicopter Landing Impact Loading	(See Note 1) 1.00 ⁽²⁾	1.00	1.10
Stowed Helicopter Loading	1.00	1.10	1.25

Notes:

- 1 The minimum plate thickness t is generally not to be less than obtained from the following:

<i>Beam Spacing</i>	<i>t</i>	<i>Beam Spacing</i>	<i>t</i>
460 mm	4.0 mm	18 in.	0.16 in.
610 mm	5.0 mm	24 in.	0.20 in.
760 mm	6.0 mm	30 in.	0.24 in.

- 2 Alternatively, ultimate state limit methods may be considered.
- 3 For members subjected to axial compression, the factor of safety is to be based on the yield stress or critical buckling stress, whichever is less.
- 4 The minimum plate thickness for materials other than steel will be specially considered.

3.5 Stowed Helicopter Loading

If provisions are made to accommodate helicopters secured to the deck in a predetermined position, the structure is to be considered for a local loading equal to the manufacturer's recommended wheel loading at maximum take-off weight, multiplied by a dynamic amplification factor based on the predicted motions of the vessel or unit for this condition, as may be applicable for the vessel or unit under consideration.

In addition to the helicopter load, a uniformly distributed loading of 490 N/m² (50 kgf/m², 10.5 lbf/ft²), representing wet snow or ice, is to be considered, if applicable. For the girders, stanchions, truss supports, etc., the structural weight of the helicopter deck is also to be considered.

3.7 Loading due to Motions of Vessel or Unit

The structure supporting helicopter decks is to withstand the loads resulting from the motions of the vessel or unit.

3.9 Special Landing Gear

Helicopters fitted with landing gear other than wheels will be specially considered.

3.11 Environmental Loading

Calculations are to consider anticipated wind and wave impact loading on helicopter decks and their supporting structures.