

KINGDOM OF BAHRAIN  
Ministry of Transportation  
and Telecommunications



مملكة البحرين  
وزارة المواصلات والاتصالات

# CIVIL AVIATION REGULATION 004

## HELICOPTER LANDING AREA STANDARDS and CERTIFICATION REGULATIONS

2 July 2017

KINGDOM OF BAHRAIN  
Ministry of Transportation  
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### Civil Aviation Regulation (CAR) 004

### Helicopter Landing Area Standards and Certification Regulations

To ensure the Bahrain Civil Aviation Affairs has the most up to date regulatory system and continues to meet its regulatory responsibilities to the highest standard, the above named Regulation has been created in order to reflect ICAO and international standards, in line with the Kingdom's requirements.

The introduction of this CAR will:

1. Enable the certification of Helicopter Landing Areas (HLA);
2. Require all civil helicopters to operate to or from only certified Landing Areas or Aerodromes;
3. Stipulate standards for the operation of Certified HLAs.

I hereby issue these Regulations, being CAR004, effective the second day of July, 2017.

Mohamed Thami Al-Raabi

Undersecretary for Civil Aviation

## **PREFACE**

As air traffic continues to increase in Bahrain, and international obligations evolve to assure safe aviation operations, it falls to Bahrain Civil Aviation Affairs (BCAA) to continue to develop its own standards, Regulations and procedures in accordance with its international obligations and the Kingdom's Law.

These Regulations set out the means by which the Kingdom certifies Heliports and Helicopter Landing Areas (HLAs). These Regulations accord with Law 14 of 2013 with respect to the issuance of Civil Aviation Law, Article 77 of the Executive Regulations issued under Ministerial decree no 21 of 2013, ANTR Volume III Part14, and with Annex 14 to the Convention on International Civil Aviation.

This document specifies the criteria applied by the Certification Authority (BCAA) on any person or organization desiring to operate an Heliport or HLA in the Kingdom of Bahrain serving civil aviation. The document also provides a reference to the holders of a certificate so that they may ensure compliance with the BCAA's requirements as they relate to the developments and operational management of a certified heliport or HLA.

The Regulations represent the minimum standards necessary to meet the licensing requirement. They have been compiled without any differences from Annex 14 Volume II, and where necessary, incorporate references from Annex 14 to other ICAO documents into the Regulations as standards.

If the BCAA determines that an applicant is properly and adequately organized, resourced, equipped and able to conduct a safe operation in accordance with the requirements of these rules, Regulations, and standards prescribed hereunder, the BCAA shall issue or renew a Heliport or HLA certificate to the applicant as the Heliport or HLA operator.

Amendments to these Regulations are the responsibility of the Bahrain Civil Aviation Affairs. Suggestions for improvement should be forwarded to the Authority.

Hussain Ahmed Al-Shuail

Asst. Undersecretary Safety and Security

**RECORD OF AMENDMENTS AND CORRIGENDA**

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## INTRODUCTION

### HELICOPTER LANDING AREA (HLA) CERTIFICATION

(1) Civil Aviation Affairs of the Kingdom of Bahrain (the Authority) may make Regulations with respect to aviation and, without restricting the generality of the foregoing, may make Regulations with respect to activities at HLAs and the location, inspection, certification, registration and operation of HLAs.

(2) Any registered organization or individual desiring to operate a HLA that is required by the Authority, by rule, to be certified may file with the Authority an application for an HLA certificate. Such application shall include the HLA manual for the HLA. If the Authority determines that an applicant is properly and adequately equipped and able to conduct a safe operation in accordance with the requirements of these rules, and the Regulations, and standards prescribed hereunder, the Authority shall issue an HLA certificate to the applicant. Each HLA certificate shall prescribe such terms, conditions, and limitations as are reasonably necessary to assure safety.

(3) The Authority or its representative may

- a) enter any civil HLA used for domestic or international traffic for the purposes of making inspections relating to the enforcement of this Regulation;
- b) enter any place in the HLA for the purposes of an investigation of matters concerning aviation safety;
- c) seize anything found in any place referred to in paragraph (a) or (b) that the Authority or its representative believes on reasonable grounds will afford evidence with respect to an offence under paragraph (4) or the causes or contributing factors pertaining to an investigation referred to in sub-paragraph (b).

(4) It shall be an offence to provide false information in support of an application for an HLA certificate or to otherwise act, or fail to act, so as to endanger the safety of HLA operations. The operator of an HLA may be proceeded against if found to have committed an offence in relation to the HLA or associated facility for which he is responsible under the terms of the HLA certificate. In such eventuality the operator of the heliport is liable to the penalty prescribed in Law no. 14 of 2013 with respect to the issuance of Civil Aviation Law.

## Chapter 1 GENERAL

### 1.1 Application

1.1.1 These Regulations apply to civil Helicopter Landing Areas within the Kingdom of Bahrain that serve any operations by aircraft other than fixed wing aircraft.

### 1.2 Interpretation

1.2.1 The terms described in this sub-section shall have the following meaning whenever they appear in these Regulations;

Accuracy; A degree of conformance between the estimated or measured value and the true value.

Aerodrome; A defined area on land (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

Air Taxi; the airborne movement of a helicopter at low speeds and at heights normally associated with operations in ground effect.

Approach and departure path; the track of a helicopter as it approaches, or takes-off and departs from, the Final Approach and Take-Off Area (FATO) of an HLA.

Aircraft; Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

Authority; the Civil Aviation Affairs of the Kingdom of Bahrain (CAA or BCAA).

CATEGORY A – with respect to rotorcraft, means a multi-engine rotorcraft that is:

(i) designed with engine and system isolation features specified for Category A requirements in Parts 27 and 29 of the FARs or EASA CS-27 and CS-29; and

(ii) capable of operations using take-off and landing data scheduled under a critical engine failure concept which assures adequate designated ground or water area and adequate performance capability for continued safe flight or safe rejected take-off in the event of engine failure.

D (D Value); the largest overall dimension of the helicopter when rotors are turning. This dimension will normally be measured from the most forward position of the main rotor tip path plane to the most rearward position of the tail rotor tip path plane (or the most rearward extension of the fuselage in the case of Fenestron or Notar tails).

DLB; Dynamic load bearing.



FATO; Final approach and take-off area. In relation to an HLA, means an area of land or water over which the final phase of the approach to a hover or landing is completed and from which the take-off manoeuvre is commenced.

FINAL APPROACH; the reduction of height and airspeed to arrive over a predetermined point above the FATO of an HLA.

Helicopter; An aircraft whose lift is derived from the aerodynamic forces acting on one or more powered rotors turning about substantially vertical axes.

Helicopter Landing Area (HLA);

(i) a Helicopter Landing Site, or

(ii) a heliport, or

(iii) a helideck.

Helideck; an area intended for use wholly or partly for the arrival or departure of helicopters on:

(i) a ship; or

(ii) a floating or fixed off-shore structure.

Helicopter Landing Site (HLS); A defined area on the surface of the earth or on a structure, to be used in other than international operations for the arrival and departure of aircraft other than fixed –wing aircraft, which may not meet the requirements of Volume II of Annex 14 to the Chicago Convention.

Heliport; An area that is intended to be used wholly or in part for the arrival, departure and surface movement of helicopters in either domestic or international operations and meets or exceeds the heliport standards set out in Volume II of Annex 14 to the Chicago Convention

(i) on land, or

(ii) on a building or other raised structure on land.

HLA manual; A manual included in an application for an HLA Certificate pursuant to these Regulations and incorporating any amendments to the manual accepted by the Authority.

ICAO; International Civil Aviation Organization.

LIFT-OFF; in relation to a helicopter, means to raise the helicopter from a position of being in contact with the surface of the HLS into the air.

Local mean sea level; the mean sea level measured at Mina Salman – the location of the Bahrain National Level Datum.

LSALT: Lowest safe altitude.

Manoeuvring area; that part of an HLA to be used for the take-off, landing and taxiing of rotorcraft, excluding aprons.

Movement area; that part of the HLA to be used for the take-off, landing and taxiing of rotorcraft, consisting of the manoeuvring area and the apron(s).

Obstacle; All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

- (i) Are located on an area intended for the surface movement of aircraft: or
- (ii) Extended above a defined surface intended to protect aircraft in flight; or
- (iii) Stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Obstacle free zone; The airspace above the inner approach surface, inner transitional surfaces, the balked landing surface and that portion of the strip bounded by these surface, which is not penetrated by any fixed obstacle other than a low-mass and frangibly mounted one required for air navigation purposes.

Obstacle limitation surfaces; A series of surfaces that define the volume of airspace at and around an HLA to be kept free of obstacles in order to permit the intended aeroplane operations to be conducted safely and to prevent the HLA from becoming unusable by the growth of obstacles around the HLA.

OEI; One engine inoperative.

Orthometric height; Height of a point related to the geoid, generally presented as an MSL elevation.

Rotorcraft; aircraft other than fixed –wing aircraft.

Rotor diameter (RD); the diameter of the main rotor with the engine/s running.

Safety management system; A systematic approach to managing safety including the necessary organizational structure, accountabilities, policies and procedures.

SUITABLE FORCED LANDING AREA –

(a) For a flight of a rotorcraft:

- (i) means an area of land on which the rotorcraft could make a forced landing with a reasonable expectation that there would be no injuries to persons in the rotorcraft or on the ground; and
- (ii) for a rotorcraft mentioned in (b) below, includes an area of water mentioned in (c) below.

(b) For paragraph (a) (ii), the ‘rotorcraft’ is a rotorcraft that:

- (i) is being used to conduct a passenger transport operation; and
- (ii) either:

- (1) is equipped with emergency flotation equipment; or
- (2) has a type certificate or supplemental type certificate for landing on water.
- (c) For paragraph (a) (ii), the 'area of water' is an area of water:
  - (i) in which the rotorcraft could ditch with a reasonable expectation that there would be no injuries to persons in the rotorcraft or on the water; and
  - (ii) that is:
    - (1) adjacent to an offshore installation with search and rescue capabilities
    - (2) adjacent to land
    - (3) in a location, set out in the exposition or operations manual of the operator of the rotorcraft, that has search and rescue capabilities.

**TAKE-OFF;** in relation to a stage of flight of a helicopter from an HLA, means the stage of flight where the helicopter accelerates into forward flight and commences climb at the relevant climb speed, or if not intending to climb, enters level flight for the purposes of departure from the helicopter landing site.

**TOUCHDOWN;** means lowering the helicopter from a flight phase not in contact with the surface of the HLA into a position which is in contact with the surface of the HLA for a landing.

**Touchdown and lift-off area (TLOF);** a defined area on an HLA in which a helicopter may touchdown or lift-off.

**VMC;** Visual meteorological conditions.

### **1.3 Standards and Recommended Practices**

Any reference in these Regulations to standards is a reference to ICAO standards and recommended practices with particular reference to the latest version of Annex 14, Volume II to the Convention on International Civil Aviation (Chicago 1944). Additional references to the Heliport Manual (Doc 9261) are for guidance only unless otherwise specified.

### **1.4 Reference Systems**

1.4.1 Horizontal reference system: WGS-84 shall be used as the horizontal (geodetic) reference system. Reported aeronautical geographical data (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.

1.4.2 Vertical reference system: Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to the geoid shall be used as the vertical reference system.

1.4.3 Temporal reference system: The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system.

## **Chapter 2 HELICOPTER LANDING AREA CERTIFICATION**

### **2.1 Requirement for a Helicopter Landing Area certificate**

2.1.1 International civil operations for the arrival and departure of rotorcraft shall not take place at other than Certified Heliports or Certified Aerodromes.

2.1.2 Domestic civil operations for the arrival and departure of rotorcraft shall not take place at other than Certified Helicopter Landing Areas or Certified Aerodromes.

### **2.2 Application for a Helicopter Landing Area Certificate**

2.2.1 An applicant for a HLA certificate shall submit to the Authority an application in the form prescribed in Appendix A. The application shall include the HLA manual.

### **2.3 Grant of a Helicopter Landing Area Certificate**

2.3.1 Before granting a HLA certificate, the Authority shall be satisfied that;

2.3.1.1 an acceptable safety management system commensurate with the size of the intended operation is in place, and

2.3.1.2 the HLA facilities, services and equipment are in accordance with these regulations, and

2.3.1.3 the HLA's operating procedures make satisfactory provision for the safety of both aircraft and the public, and

2.3.1.4 the HLA manual has been prepared for the applicant's HLA and submitted with the application contains all the relevant information, and

2.3.1.5 the applicant has the necessary competence, experience and resources to operate and maintain the HLA to the satisfaction of the Authority, and

2.3.1.6 the applicant holds a certificate of insurance against liability or risk arising from the operation of the HLA, to the satisfaction of the Authority, and

2.3.1.7 any fees levied by the Authority in respect of the application have been paid.

## **2.4 Endorsement of Conditions**

2.4.1 After successful completion of the processing of the application, the Authority may endorse the HLA certificate with conditions pertaining to the use of the HLA.

## **2.5 Validity of the HLA certificate**

2.5.1 An HLA certificate shall be valid for 3 years if no shorter period is endorsed, or until it is suspended or cancelled, whichever is earlier.

## **2.6 Transfer of a HLA certificate**

2.6.1 The Authority may give its consent to, and issue an instrument of transfer of a HLA certificate to a transferee where:

- a) the current holder of the HLA certificate notifies the Authority in writing at least 90 days before ceasing to operate the HLA that the current holder will cease to operate the HLA as of the date specified in the notice;
- b) the current holder of the HLA certificate notifies the Authority in writing, the name of the transferee;
- c) the transferee applies in writing to the Authority within 60 days before the current holder of the HLA certificate ceases to operate the HLA, for the HLA certificate to be transferred to the transferee; and
- d) the requirements of 2.2.1 and 2.3.1.5 and 2.3.1.6 are met.

2.6.2 If the Authority does not consent to the transfer of a HLA certificate, it shall notify the transferee, in writing, of its reasons within 7 days after making that decision.

## **2.7 Amendment of the HLA certificate**

2.7.1 The Authority may, provided that the requirements of Regulations 2.2.1 and 2.3.1.5 and 2.3.1.6, and 3.5.1 are met, amend an HLA certificate where:

- a) there is a change in the use or operation of the HLA;
- b) there is a change in the boundaries of the HLA; or
- c) the holder of the HLA certificate requests the amendment.

2.7.2 If there is a change in ownership or management of the HLA, the new owner or manager shall apply for a transfer of the HLA certificate in accordance with 2.6.1.

2.7.3 If the HLA operator requests an amendment to the HLA certificate or the endorsed conditions such request shall be accompanied by:

- a) a detailed account of the proposed amendment including the reasons for the amendment;
- b) an assessment of the safety risks associated with any change in use or operation of the HLA including, where appropriate, the findings of any aeronautical study undertaken on behalf of the HLA operator;  
and
- c) particulars of any consequential changes to the AIP, HLA manual and HLA emergency plan.

2.7.4 The Authority may amend an HLA certificate so as to restrict or prohibit specific operations at the HLA if the HLA operator breaches the conditions of the type of use endorsed by the HLA certificate. The Authority shall provide written notice of intention to amend an HLA certificate stating the reasons for the proposed amendment.

## **2.8 Suspension or Withdrawal of an HLA Certificate**

2.8.1 The Authority may suspend or withdraw an HLA certificate if the HLA operator fails to meet the obligations set out in Chapter 4 of these Regulations.

2.8.2 In the event of a serious failure of the HLA operator's safety management system the Authority may require specific operations to be suspended with immediate effect.

## Chapter 3 HLA MANUAL

### 3.1 Preparation of an HLA Manual

3.1.1 The operator of a certified HLA shall have a manual, to be known as the HLA manual, for the HLA.

3.1.2 The HLA manual shall:

- a) be type written or printed, and signed on behalf of the HLA operator by a duly authorised manager or executive;
- b) be in a format that is easy to revise and insert replacement pages;
- c) have a system for recording the currency of page and amendments thereto;
- d) include a page for logging revisions; and
- e) be organized in a manner that will facilitate the preparation review and approval process.

### 3.2 Location of the HLA Manual

3.2.1 The HLA operator shall provide the Authority with a complete and current copy of the HLA manual.

3.2.2 The HLA operator shall keep at least one complete and current copy of the HLA manual at the HLA and one copy at the operator's principal place of business if that is other than the HLA.

3.2.3 The HLA operator shall make the HLA manual available to all relevant organizations operating at the HLA, and take all reasonable steps to ensure that all relevant HLA personnel, regardless of their employer, are familiar with sections of the HLA manual relevant to their activity at the HLA.

3.2.4 The HLA operator shall make the HLA manual available for inspection by the Authority.

### 3.3 Information to be included in the HLA Manual

3.3.1 The operator of a certified Heliport or Helideck shall include in an HLA manual, to the extent these are applicable to the HLA, the parts described in Appendix C of CAR001 Aerodrome Standards and Certification Regulations.

3.3.1.1 If a particular is not included in the HLA manual because it is not applicable to the Heliport or Helideck, the HLA operator shall state in the manual:

- a) that the particular is not applicable; and
- b) the reason for non-applicability

3.3.2 The operator of a certified Helicopter Landing Site shall include in an HLA manual as a minimum the following:

3.3.2.1 The name, title/CR/CPR and contact details of the operator

3.3.2.2 The name, title, CPR and contact details of the accountable postholder, if different to the operator

3.3.2.3 The address, geographical co-ordinates and location description of the HLS

3.3.2.4 The scope of use of the HLS

3.3.2.5 The declared dimensions of the HLS

3.3.2.6 HLS markings, including any lighting, signs, navigation and visual aids

3.3.2.7 Operating procedures, including personnel requirement and roles/duties, operating minima, security procedures and emergency procedures.

3.3.2.8 A description of the safety management system of the applicant, with reference to the HLS.

### **3.4 Revision or variation of information**

3.4.1 The operator of a certified HLA shall amend the HLA manual, whenever necessary, in order to maintain the accuracy of the manual.

3.4.2 To maintain the accuracy of the HLA manual and/or the safety of operations, the Authority may issue written directions to alter or amend the manual in accordance with the direction.

### **3.5 Notification of changes**

3.5.1 An HLA operator shall notify the Authority as soon as is practicable, of any alterations that the operator wishes to make to the HLA manual.

### **3.6 Acceptance of the HLA Manual**

3.6.1 The Authority shall accept the HLA manual and any amendments, thereto, provided these meet the requirements of the preceding Regulations in this section.



## **Chapter 4 OBLIGATIONS OF THE HLA OPERATOR**

### **4.1 Compliance with standards**

4.1.1 A Heliport or Helideck operator shall comply with the standards specified in Regulation 1.3 and with any conditions endorsed by the certificate issued pursuant to Regulations 2.4.1.

### **4.2 Competence of operational and maintenance personnel**

4.2.1 The HLA operator shall employ adequate numbers of qualified and skilled personnel for performing all critical activities in the HLA operation and maintenance processes.

4.2.2 Where the Authority has prescribed competency certification requirements for personnel referred to in Regulation 4.2.1, the HLA operator shall employ only those persons possessing such certificates.

4.2.3 The HLA operator shall implement a program to maintain and develop the competence of the personnel referred to in Regulation 4.2.1.

### **4.3 HLA operation and maintenance**

4.3.1 Subject to any directions that the Authority may issue, the HLA operator shall operate and maintain the HLA in accordance with the procedures set out in the HLA manual.

4.3.2 To ensure the safety of aircraft, the Authority may give written directions to an HLA operator to alter the procedures set out in the HLA manual.

4.3.3 The HLA operator shall ensure proper and efficient maintenance of the HLA facilities for which the operator has responsibility.

4.3.4 The HLA operator shall co-ordinate with the ATS provider in order that appropriate air traffic services are available to ensure the safety of aircraft in the airspace associated with the HLA, to the satisfaction of the Authority. The coordination shall cover other areas related to safety such as aeronautical information management, aerodrome control service, designated meteorological authorities, and security.

### **4.4 HLA operator's safety management system**

4.4.1 The HLA operator shall implement a safety management system acceptable to the Authority. The safety management system shall clearly define lines of safety accountability, including a direct accountability for safety on the part of senior management. As a minimum the system shall:

- a) identify safety hazards;
- b) ensure that remedial action necessary to maintain an acceptable level of safety is implemented;
- c) provide for continuous monitoring and regular assessment of the safety level achieved; and

d) aim to make continuous improvement to the overall level of safety.

4.4.2 The HLA operator shall oblige all the users of the HLA including fixed base operators, ground handling agencies, and other organizations that perform activities independently at the HLA in relation to flight or aircraft handling, to comply with the requirements laid down by the HLA operator with regard to safety and order at the HLA, and shall monitor such compliance.

4.4.3 The HLA operator shall oblige all the users of the HLA including fixed base operators and organizations referred to in Regulation 4.4.2 to cooperate in the program to promote safety and order at, and the safe use of, the HLA by immediately informing it of the accidents, incidents, defects and faults which have a bearing on safety.

#### **4.5 HLA operator's internal safety audits and safety reporting**

4.5.1 The HLA operator shall arrange for an audit of the safety management system including an inspection of the HLA facilities and equipment. The audit shall cover the HLA operator's own functions. The HLA operator shall also arrange an external audit and inspection program for evaluation of other users including fixed-base operators and organizations working at the HLA referred to in Regulation 4.4.2.

4.5.2 The audits referred to in Regulation 4.5.1 shall be carried out at intervals not exceeding 12 months, or more frequently as required by the Authority.

4.5.3 The HLA operator shall ensure that the audit reports including the report on the HLA facilities, services and equipment are prepared by suitably qualified safety experts.

4.5.4 The HLA operator shall retain a copy of the report(s) referred to in Regulation 4.5.3 for the duration of the validity of the HLA certificate and for two years after the end of the period for which the certificate is valid, and shall supply a copy of the report(s) to the Authority upon request for its review/reference.

4.5.5 The reports referred to in Regulation 4.5.3 shall be prepared and signed by the persons who carried out the audit and inspection.

#### **4.6 Access to HLA**

4.6.1 Persons authorized by the Authority may inspect and carry out tests on the HLA facilities, services and equipment, inspect HLA operator's documents and records, and verify the HLA operator's safety management system before the HLA certificate is granted or renewed and subsequently, at any other time, for the purpose of ensuring safety and order at the HLA.

4.6.2 An HLA operator shall, at the request of persons referred to in Regulation 4.6.1, allow access to any part of the HLA or, any HLA facility, including equipment, records, documents and operator's personnel for the purpose referred to in Regulation 4.6.1.

4.6.3 The HLA operator shall cooperate in conducting the activities referred to in sub-section 4.6. 1.

#### **4.7 Notifying and reporting**

4.7.1 An HLA operator shall adhere to the requirements to notify and report to the Authority, Aeronautical Information Management (AIM), air traffic control and pilots within the specified time limits required by Regulations 4.7.2 to 4.7.5 inclusive.

*4.7.2 Notification of inaccuracies in Aeronautical Information Management (AIM) Publications:* an HLA operator shall review the issues of Aeronautical Information Publication (AIP), AIP Supplements, AIP Amendments, Notices to Airmen (NOTAMS), pre-flight Information Bulletins and Aeronautical Information Circulars issued by the AIM on initial receipt thereof, and at regular intervals thereafter in accordance with the AIRAC publication cycle. Immediately after such reviews, an HLA operator shall notify AIM of any inaccurate information contained therein that pertains to the HLA.

*4.7.3 Notification of changes in HLA facilities, equipment, and level of service planned in advance:* an HLA operator shall notify the Authority and AIM in writing at least 60 days before any change to the HLA facility or equipment or the level of service at the HLA that has been planned in advance and that is likely to effect the accuracy of the information contained in any AIM publication referred to in Regulation 4.7.2.

*4.7.4 Issues requiring immediate notification:* subject to the requirements of Regulation 4.7.5, an HLA operator shall give to the Authority and AIM, and cause to be received at air traffic control and the flight operations unit, immediate notice giving details of any of the following circumstances of which the operator has knowledge:

a) obstacles, obstructions and hazards:

i) any projections by an object through an obstacle limitation surface relating to the HLA; and

ii) the existence of any obstruction or hazardous condition affecting aviation safety at or near the HLA;

b) level of service: reduction in the level of service at the HLA set out in the AIM publications referred to in Regulation 4.7.2.

c) movement area: closure of any part of the movement area of the HLA; and

d) any other condition that could affect aviation safety at the HLA and against which precautions are warranted.

*4.7.5 Immediate notification to pilots:* when it is not feasible for an HLA operator to cause notice of a circumstance referred to in 4.7.4 to be received at the air traffic control or a flight operations unit in accordance with that Regulation, the HLA operator shall give immediate notice directly to the pilot who may be affected by that circumstance.

#### **4.8 Special Inspections**

4.8.1 An HLA operator shall inspect an HLA, as the circumstances require, to ensure aviation safety:

- a) as soon as practicable, after an aircraft accident or incident within the meaning of these terms defined in ICAO Annex 13 and the Kingdom's notification procedure for notifying incidents and accidents.
- b) during any period of construction or repair of the HLA facilities or equipment that is critical to the safety of aircraft operations; and
- c) at any other time when there are conditions at the HLA that could affect aviation safety.

#### **4.9 Removal of obstructions and hazardous items from HLA surface**

4.9.1 An HLA operator shall remove from the surface of the HLA any vehicle, other obstruction or item that is likely to be hazardous.

#### **4.10 Warning notices**

4.10.1 Where low flying aircraft, at or near an HLA, or taxiing aircraft are likely to be hazardous to people or vehicular traffic, the HLA operator shall:

- a) post notices warning of the hazard on any public way that is adjacent to the manoeuvring area; or
- b) if such a public way is not controlled by the HLA operator, inform the authority responsible for posting the notices on the public way that there is a hazard.

#### **4.11 HLA Data**

4.11.1 The HLA operator shall compile and submit to AIM and the Authority the HLA data as required by these Regulations. The determination and reporting of HLA related aeronautical data shall be in accordance with CAR001 Appendix C, and Annex 14 Vol. II, and Annex 15, Chapter 4, and Annex 15, Appendix 1.

4.11.2 HLA reference point: A HLA reference point shall be established for a HLA not co-located with a certified aerodrome. The HLA reference point shall be located near the initial or planned geometric centre of the HLA and shall normally remain where first established, except in the case of a Helideck. The position of a HLA reference point shall be measured and reported to the aeronautical information services authority in degrees, minutes and seconds.

Note — When a heliport is collocated with a certified aerodrome, the established aerodrome reference point serves both aerodrome and heliport. The position of the heliport reference point shall be measured and reported to the AIM and the Authority in degrees, minutes and seconds in accordance with the requirements of WGS-84.

4.11.3 HLA elevation (*excepting helidecks*): the HLA elevation of the TLOF and geoid undulation at the HLA elevation position, and points on each threshold of the FATO, where applicable, shall be measured to the accuracy of one-half metre.

4.11.4 HLA dimensions and related information: the data for each facility provided on an HLA shall be measured or described, as appropriate, in accordance with CAR001 Appendix C and with the requirements detailed in ICAO Annex 14 Vol. II.

4.11.5 *Strength of pavements*: the bearing strength of a pavement shall be determined in accordance with the requirements contained in ICAO Annex 14 Vol. I, chapter 2, para.2.6.

#### 4.11.6 DECLARED DISTANCES

The following distances to the nearest metre shall be declared, where relevant, for a HLA:

- a) take-off distance available;
- b) rejected take-off distance available; and
- c) landing distance available.

4.11.7 *Heliport Dimensions and Related Information*: the following data shall be measured or described;

- a) HLA type — Heliport, Helicopter Landing Site or Helideck;
- b) TLOF — dimensions to the nearest metre, slope, surface type, bearing strength in tonnes (1000 kg);
- c) FATO — type of FATO, true bearing to one-hundredth of a degree, designation number (where appropriate), length and width to the nearest metre, slope, surface type;
- d) safety area — length, width and surface type;
- e) helicopter ground taxiway, air taxiway and air transit route — designation, width, surface type;
- f) apron — surface type, helicopter stands;
- g) clearway — length, ground profile;
- h) visual aids for approach procedures, marking and lighting of FATO, TLOF, helicopter ground taxiways, helicopter air taxiway and helicopter stands.

4.11.8 *Condition of the movement area and related facilities*: information on the condition of the movement area and the operational status of related facilities shall be provided to the AIM, and similar information of operational significance to the air traffic services units, to enable those units to provide the necessary information to arriving and departing aircraft. The information shall be kept up to date and changes in conditions reported without delay.

4.11.9 Inspections of the movement area: in order to facilitate compliance with Regulation 4.11.8 inspections of the movement area shall be carried out each day at least once where the code number is 1 or 2 and at least twice where the code number is 3 or 4.

4.11.10 *Rescue and fire fighting*: information concerning the level of protection provided at an HLA for aircraft rescue and fire fighting purposes shall be made available. The level of protection normally available at an HLA shall be expressed in terms of the category of the rescue and fire fighting services as required by Regulations 9.5 and 9.7, as described in ICAO Annex 14 Vol. I chapter 9 para. 9.2. The level of protection declared shall be in accordance with the types and amounts of extinguishing agents normally available at the HLA. Significant changes in the level of protection normally available at an HLA for rescue and fire fighting shall be notified to the appropriate air traffic services units and AIM to enable those units to provide the necessary information to arriving and departing aircraft. When such a change has been corrected, the above units shall be advised accordingly. A significant change should be expressed in terms of the new category of the rescue and fire fighting service available at the HLA.

4.11.11 Coordination between AIM and the HLA operator shall be as detailed in ICAO Annex 14 Vol. I chapter 2 para. 2.13 so as to provide the data and information required by these Regulations with the required accuracy and a minimum of delay.

## Chapter 5 PHYSICAL CHARACTERISTICS

### 5.1 General

5.1.1 The Kingdom of Bahrain does not notify any differences from Annex 14 under article 38 of the Convention in respect of the standards for physical characteristics of Heliports, and has adopted certain recommended practices as standards. Helicopter Landing Sites may not meet those standards, and are not permitted for use in international operations.

### 5.2 Helicopter Landing Sites

5.2.1 Any passengers, crew and operational personnel carried into such locations shall be briefed on the hazards of the site and any safety procedures needed to ensure safe loading and unloading at the HLS.

#### 5.2.2 FATO

5.2.2.1 The FATO shall, at minimum, be capable of *enclosing a circle* with a diameter equal to one-and-a-half times the D-value ( $1.5 \times D$ ) of the largest helicopter intended to use the site, and be free of obstacles likely to interfere with the manoeuvring of the helicopter.

5.2.2.2 A safety area shall extend a distance of at least  $0.25 \times D$  or 3 m around the FATO, whichever is the larger, or a greater distance if considered necessary for a particular HLS.

5.2.2.3 The safety area around a FATO need not be a solid surface. No fixed objects shall be permitted on or in the area defined as the Safety Area, except for objects not exceeding a height of 25 cm. Notwithstanding this, designers and operators of an HLS shall minimise obstacles within the FATO, TLOF and Safety Area.

5.2.2.4 The FATO shall provide ground effect, particularly if the associated TLOF is located outside of its defined area.

5.2.2.5 The FATO shall be capable of at least dynamic load-bearing for the helicopters being operated in performance class 1 or to category A requirements. If the FATO and TLOF are coincident (e.g. on a roof top) then it follows that the whole area shall be dynamic load-bearing and provide ground effect.

5.2.2.6 The mean slope of a FATO shall not exceed 5% for 'Category A' operations, 7% for other operations or a lesser percentage if required by the design helicopter Authorised Flight Manual. The slope of an associated solid Safety Area shall not exceed 4% up away from the FATO.

### 5.2.3 TLOF

5.2.3.1 The TLOF, being a cleared and stable area capable of bearing the dynamic loads which may be imposed by the helicopter on the site by a heavy landing, shall, at a minimum, be an area at least  $0.83 \times D$  and may or may not be located within the FATO (see Figure 1).

5.2.3.2 If the TLOF is not within the FATO, it shall be co-located with a stand. In this case the TLOF is also protected by the safety area of the stand.

5.2.3.3 The TLOF shall provide for adequate drainage to prevent accumulation of water on the surface, but the overall slope shall not exceed the maximum slope landing capability of the helicopter. The recommended maximum slope for a TLOF is 2% in any direction.



**Figure 1: A  $1.5 \times D$  FATO with additional  $0.25 \times D$  Safety Area (Total area is  $2 \times D$ ). Also showing 'H', FATO perimeter and  $0.5 \times D$  Touchdown/Positioning Markings (TD/PM).**

### 5.2.4 Stands

5.2.4.1 A helicopter Stand shall be of sufficient size to contain a circle with a diameter of at least  $1.2 \times D$ , plus a  $0.4 \times D$  protection area for the largest helicopter that the stand is intended to serve.



5.2.4.2 One directional or 'taxi-through' stands shall be a minimum of 1.5 x RD for ground taxiing and 2 x RD for air taxiing, including the protection area.

5.2.4.3 When a helicopter stand is to be used for turning in the hover, the minimum dimension of the stand and protection area shall be not less than 2 x D, and suitably larger for wheeled helicopters turning on the ground taking into account the arc, or path, of the tail rotor.

5.2.4.4 No fixed objects shall be permitted within the stand and protection area. All moveable objects, except those essential to the operation (e.g. portable floodlights), shall be removed so as not to present a hazard while the helicopter is operating.

5.2.4.5 If there is a need for more than one stand, each shall be located with its own TLOF and with its own safety area.

5.2.4.6 For multiple adjacent stands and related simultaneous operations, the provisions in the latest version of the ICAO *Heliport Manual* shall apply.

### **5.2.5 Approach and departure paths**

5.2.5.1 The approach and departure paths shall be in accordance with the Annex 14 recommendations. The decision on which slope is appropriate for the HLS shall be based on which is the most suitable for the performance class of the operations at the site.

5.2.5.2 A minimum of two approach and departure paths shall be assigned. These shall be separated by a minimum angle of 150°, and may be curved left or right to avoid obstacles or to take advantage of a more advantageous flight paths. This does not preclude one-way HLSs, provided adequate provisions are made for turning, limitations are notified to aircraft operators and any operational risks are mitigated accepted by the Authority. Any curvature shall comply with recommendations contained in ICAO Annex 14 Volume II.

5.2.5.3 The slope design categories may not be restricted to a specific performance class of operation and may be applicable to more than one performance class of operation.

5.2.5.4 Designers and HLS operators are advised that consultation with helicopter operators will help to determine the appropriate slope category to apply according to the HLS environment and the most critical helicopter type for which the site is intended. The Authority may require an aeronautical study to be completed at the applicant's expense, prior to certification.

### **5.2.6 Other physical and ancillary considerations**

5.2.6.1 An air taxiing route, with a width equal to twice the main RD of the design helicopter, shall be provided where the FATO and the TLOF are not coincident.

5.2.6.2 The HLS shall be sited with separate primary and emergency personnel access routes, with both routes located as far apart as practicable.

5.2.6.3 The HLS shall be equipped with suitable fire protection and equipment based on the operations and the types of helicopters in use at the site. At least two fire extinguishers having specifications acceptable to the Authority and any additional equipment as may be required to effectively extinguish a fire at the HLS, taking into account the types of operations and aircraft using the facility.

5.2.6.4 Where more than one fire extinguisher is available:

(i) at least one extinguisher shall be positioned at each of the primary and emergency personnel access routes, preferably without creating potential obstacles to operations, and

(ii) each separate TLOF or fuelling facility shall be equipped with at least one standard fire extinguisher.

5.2.6.5 Alternative fire-fighting resources providing a similar or better level of protection may be used if approved by the Authority.

### **5.3 Markings and indicators for HLSs**

5.3.1 Markings and Indicators for HLAs shall be acceptable to the Authority.

### **5.4 Wind Indicator**

5.4.1 An HLA shall be equipped with at least one wind indicator measuring 2.4 m in length and visible to the pilot during take-off, approach and landing. Where more than one indicator may be needed at more complex locations to ensure pilots receive full information on the wind flow over the site, the Authority shall determine the number and location of additional wind indicators.

5.4.2 The wind indicator for night operations shall be capable of being lit.

### **5.5 HLA identification marking**

5.5.1 An identification marking shall be painted on the HLA FATO in the form of a large letter 'H', with dimensions equal to 4 x 3 x 0.75 m (height x width x stripe) and proportionately smaller for smaller facilities. The long side of the marking shall be oriented to the preferred final approach paths to the HLA.

5.5.1.1 The letter 'H' in 5.5.1 shall be white in colour, except for HLSs collocated at hospital facilities.

5.5.1.2 At HLSs collocated at hospital facilities, the letter 'H' in 5.5.1 shall be red in colour and displayed on a white cross-shaped background (see Fig. 2 below).

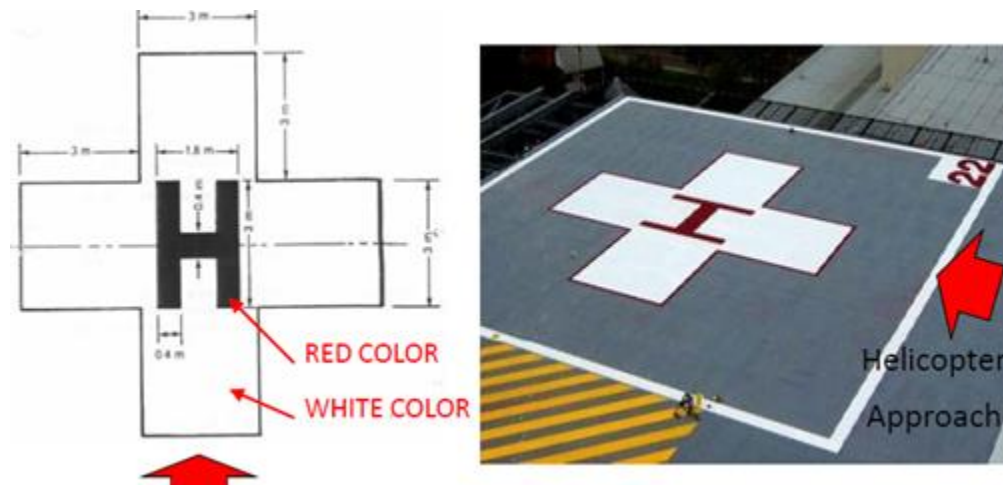


Fig. 2 Example HLA Hospital Marking.

### 5.6 FATO edge markings

5.6.1 The edge of the FATO shall be marked with a 30-50 cm wide broken white stripe (or a suitable number of markers), painted to clearly delimit the FATO.

5.6.2 If the FATO is separate from the TLOF, it shall be marked so it is easily identifiable to the pilot when conducting operations. The use of aiming point markings may assist in this situation (see 5.7).

5.6.3 A runway-type FATO shall be marked in accordance with the standards in Chapter 5 of Volume II of Annex 14.

### 5.7 Aiming point marking

5.7.1 An aiming point marking shall be provided at the HLA where it is necessary to make an approach to a particular point prior to moving to the TLOF. Any aiming point marking shall be in line with the standards outlined in Chapter 5 of Volume II of Annex 14; this may include an internal suitably-sized 'H' marking if required by the Authority.

### 5.8 Approach and departure path(s) marking

5.8.1 Preferred approach and departure paths shall be marked with suitably-sized single or double-headed yellow arrows at the perimeter of the TLOF, so as to be viewed easily by the pilot of a helicopter when over-flying or on approach to the site.

### 5.9 Touchdown/Positioning Marking (TD/PM)

5.9.1 A TD/PM shall be provided where it is necessary for a helicopter to touchdown or be accurately placed in a specific position.

5.9.2 A TD/PM shall provide the visual cues that permit a helicopter to be placed in a specific position and, when necessary, orientated such that, when the pilot's seat is above the marking, the undercarriage will be inside the load-bearing area and all parts of the helicopter will be clear of any obstacles by a safe margin.

5.9.3 A TD/PM shall be a yellow circle and have a line width of at least 0.5 m. The inner diameter of the circle shall be 0.5 x D of the largest helicopter that the HLA TLOF is intended to serve.

#### **5.10 Maximum operational helicopter tonnage marking**

5.10.1 A maximum *operational* helicopter tonnage marking shall be painted on the TLOF (if there is such a limit on the HLA) with the weight, expressed in kilograms to one decimal place, calculated by multiplying the indicator number by 1000.

5.10.2 The tonnage marking figures shall be orientated so as to be readable by pilots on the preferred final approach paths to the HLA. The orientation shall be approved by the Authority.

5.10.3 If a facility name marking is added, it shall be oriented as with the tonnage marking.

#### **5.11 Night operations at HLSs**

For night operations at an HLA other than Heliports and Helidecks, operators should refer to Annex 14 and the ICAO *Helicopter Manual*, and shall apply the following:

##### **5.11.1 FATO**

The edge of the FATO shall be lit by either omni-directional green lights or by a combination of markings and shielded perimeter lighting/floodlighting. The lights should be preferably flush with the level of the HLS but otherwise project no more than 25 cm above the level of the HLS. Where lights protrude above the surface of the FATO this shall be noted in the HLS's operating information available to pilots. A minimum of eight equally-spaced lights shall be used for square, octagonal and circular shaped FATOs, with proportionately more for larger rectangular shaped FATOs.

##### **5.11.2 TD/PM**

The TD/PM shall be lit by either flush-mounted, yellow panel lights or floodlights.

##### **5.11.3 Wind velocity information**

Wind velocity information shall be provided by one of the following:

- (i) an illuminated wind direction indicator as mentioned in 5.4 above, or
- (ii) any other suitable means, such as an approved automated weather information station, or
- (iii) radio communication with an authorised weather observer located at, or in proximity to, the HLS.

#### **5.11.4 Approach guidance**

The standard approach direction(s) shall be lit by point or panel lights, preferably flush to the HLS surface, depicted by yellow arrows similar in look to the painted markings. When it is considered essential by the Authority that an accurate approach path be achieved due to the presence of obstacles, additional approach guidance lighting shall be provided in accordance with Annex 14. Obstacle lighting shall be provided where deemed necessary by the Authority, or operational limitations applied.

#### **5.11.5 Air taxiing route**

An air taxiing route shall have a minimum width equal to 3 x the main RD of the helicopter and, depending on operational demands, be marked by either blue edge or green centreline lights spaced at 15 m intervals, or be floodlit in a manner acceptable to the Authority.

#### **5.11.6 Visibility**

All lights, except air-taxiing route lights, shall be visible from a distance of at least 3 km at the prevailing Lowest Safe Altitude (LSALT) in clear conditions.

#### **5.12 Elevated HLAs**

Where there is a sheer drop from the edges of the HLA and the free movement of passengers and operator personnel cannot be made without some risk, a safety net shall be installed.

5.12.1 A safety net shall extend outwards to at least 1.5 m from the edges of the safety area and be capable of withstanding, without damage, a 100 kg mass being dropped from a height of 3m. It shall be so manufactured that it provides a hammock effect for an object falling into it rather than a trampoline effect, to the satisfaction of the Authority.

5.12.2 A maximum allowable mass marking shall be displayed at an elevated HLA.

5.12.3 The entrance to the HLA shall display a warning sign acceptable to the Authority.

## **Chapter 6**

### **Helidecks**

6.1 The Authority shall certify Helidecks which conform to the standards specified in the latest published version of United Kingdom CAP 437 Standards for Offshore Helicopter Landing Areas.

6.1.1 Applications which do not conform to the standards specified in 6.1 shall be assessed on a case –by –case basis, and shall be at the discretion of the Authority.

6.1.1.1 The Authority may grant certification to Helidecks which do not conform to the standards specified in 6.1, subject to any additional limitations or requirements determined by the Authority.

## APPENDIX A

KINGDOM OF BAHRAIN  
Ministry of Transportation  
and Telecommunications



مملكة البحرين  
وزارة المواصلات والاتصالات

### Application for the grant of a Helicopter Landing Area Certificate

**NAME:**

**ADDRESS:**

**DATE OF APPLICATION:**

**LIST OF SUPPORTING DOCUMENTS:**

Include Type of HLA applied for, Location, and HLA Manual.

**ACCOUNTABLE MANAGER:**

On behalf of the applicant named above, I hereby certify that the information contained in this application is true and complete.

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Name

Position

Contacts

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Date

## Appendix B

KINGDOM OF BAHRAIN  
Ministry of Transportation  
and Telecommunications



مملكة البحرين  
وزارة المواصلات والاتصالات

### HELICOPTER LANDING AREA CERTIFICATE

**TYPE OF HLA:**  
**CERTIFICATE NUMBER:**  
**NAME OF THE HOLDER:**  
**DATE OF VALIDITY:**  
**SPECIAL CONDITIONS:**

This certificate is issued by the Civil Aviation Affairs of the Kingdom of Bahrain (the Authority) in pursuance of its obligations to ensure enforcement of Law No. 14 of 2013 with respect to the issuance of the Civil Aviation Law, and acceptance of international standards in the certification of Helicopter Landing Areas. The Authority hereby certifies that above named holder is in compliance with Bahrain Civil Aviation Regulation 004, subject to any Special Conditions attached.

This certificate may be amended, suspended or withdrawn at any time by the Authority in the event of failure of the holder to comply with Regulations or the Special Conditions attached.

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Signing authority:

Title:

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Date