ANNEX 14 VOLUME II: HELIPORTS

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8 – 9 April 2021

INTRODUCTION TO ANNEX 14

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ICAO

International Standards and Recommended Practices

Annex 14 to the Convention on International Civil Aviation

Aerodromes

Volume I
Aerodrome Design and Operations

Eighth Edition, July 2018

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For information regarding the applicability of the Standards and Recommended Practices, see Chapter 1, 1.2 and the Foreword.

INTERNATIONAL CIVIL AVIATION ORGANIZATION

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INTERNATIONAL CIVIL AVIATION ORGANIZATION

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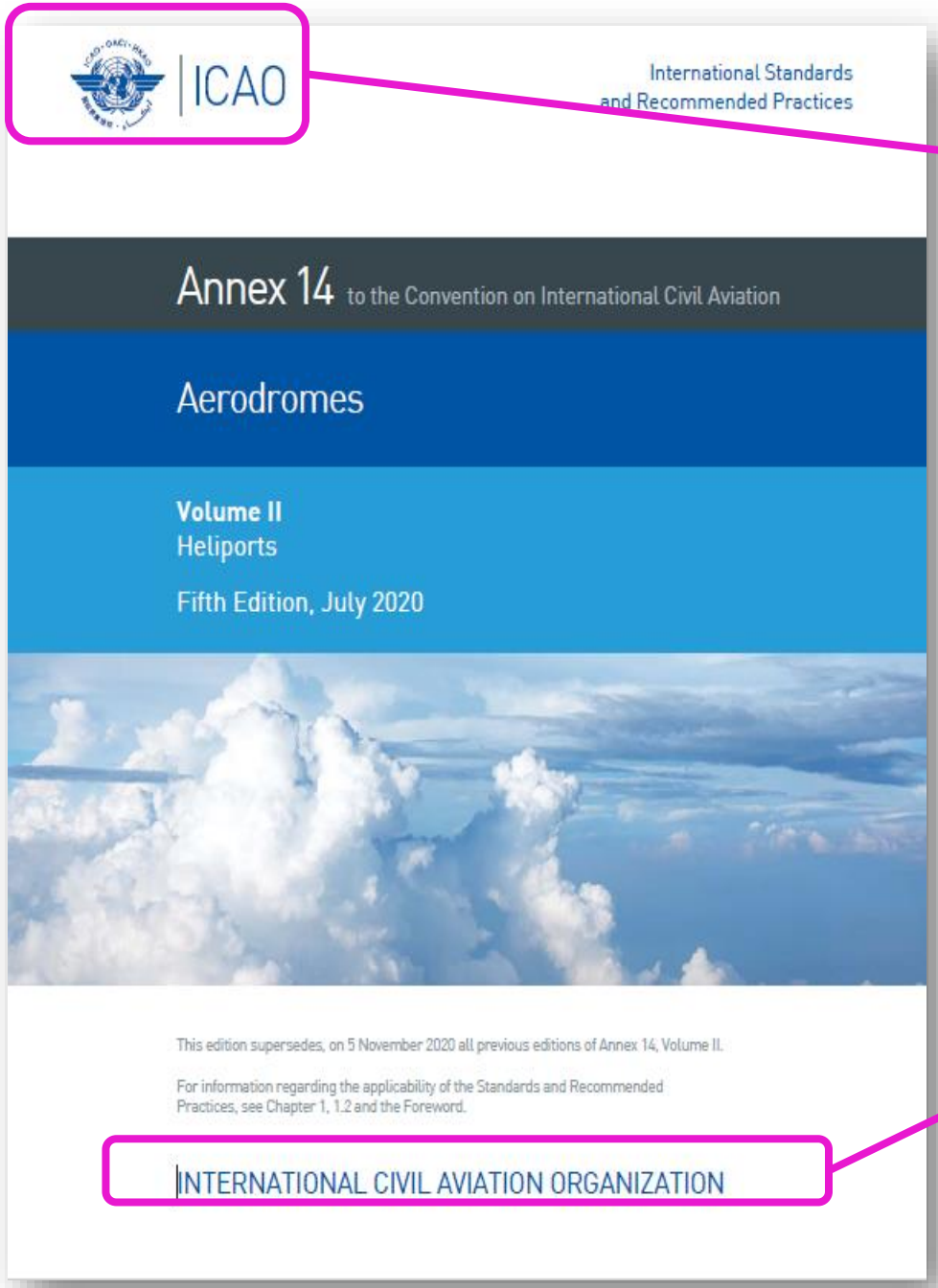

INTERNATIONAL CIVIL AVIATION ORGANIZATION

International Civil Aviation Organization (ICAO)

- A UN specialized agency, established in 1944 to manage the administration and governance of the Convention on International Civil Aviation (Chicago Convention)

- The Convention's 193 Member States and industry groups work to reach consensus on international civil aviation Standards and Recommended Practices (SARPs) and policies in support of a safe, efficient, secure, economically sustainable and environmentally responsible civil aviation sector

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INTERNATIONAL CIVIL AVIATION ORGANIZATION

Annex 14 to the Convention on International Civil Aviation

Convention on International Civil Aviation (Chicago Convention), 7 December 1944

- Established the International Civil Aviation Organization (ICAO),
- Establishes rules of airspace, aircraft registration and safety, security, and sustainability, and details the rights of the signatories in relation to air travel.
- Revised eight times (in 1959, 1963, 1969, 1975, 1980, 1997, 2000 and 2006)
- Supported by 19 Annexes that contain *Standards and Recommended Practices (SARPs)*
- Only applicable to civil aviation

LIST OF ANNEXES

Annex 1	Personnel Licensing
Annex 2	Rules of the Air
Annex 3	Meteorological Service for International Air Navigation
Annex 4	Aeronautical Charts
Annex 5	Units of Measurement to be Used in Air and Ground Operations
Annex 6	Operation of Aircraft
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Annex 11	Air Traffic Services
Annex 12	Search and Rescue
Annex 13	Aircraft Accident and Incident Investigation
Annex 14	Aerodromes
Annex 15	Aeronautical Information Services
Annex 16	Environmental Protection
Annex 17	Security: Safeguarding International Civil Aviation Against Acts of Unlawful Interference
Annex 18	The Safe Transport of Dangerous Goods by Air
Annex 19	Safety Management

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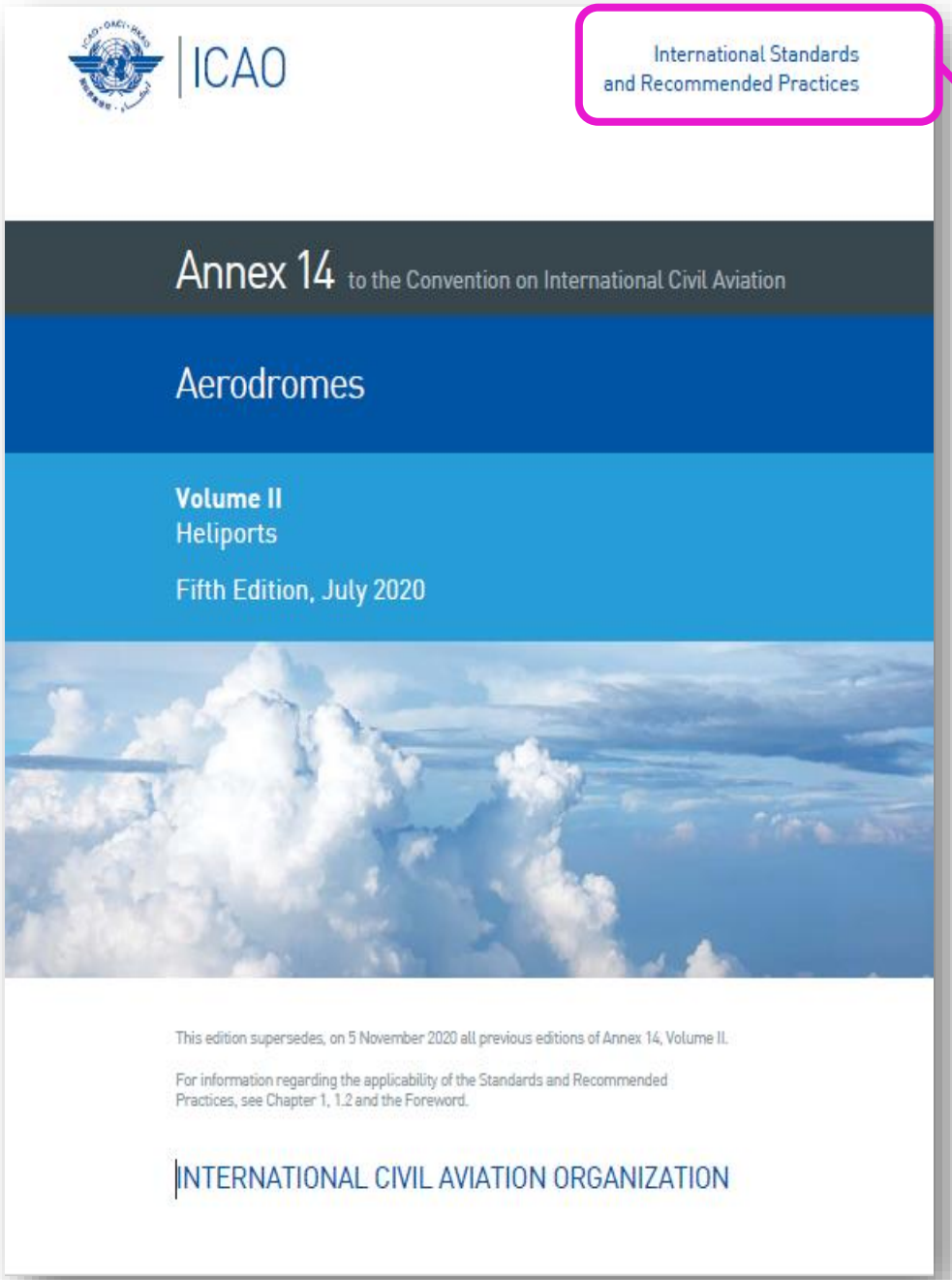

International Standards and Recommended Practices

International Standards & Recommended Practices (SARPs)

Spesifikasi teknikal yang digunakan ICAO berdasarkan Artikel 37 kepada Convention on International Civil Aviation untuk mencapai :

“The highest practicable degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation".

International Standards & Recommended Practices (SARPs)

Standards

"Any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognised as necessary for the safety or regularity of international air navigation and to which Contracting States will conform in accordance with the Convention".

Standards have been printed in light face roman and the operative verb "shall" is used.

> 3.1.8 A safety area shall provide:
>
> a) an area free of obstacles, except for essential objects which because of their function are located on it, to compensate for manoeuvring errors; and

International Standards & Recommended Practices (SARPs)

Recommended Practice

"Any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognised as desirable in the interest of safety , regularity or efficiency of international air navigation, and to which Contracting States will endeavour to conform in accordance with the Convention".

Recommended Practices have been printed in *light face italics* and the operative verb "should" is used.

3.1.6 **Recommendation.**— *The FATO should be located so as to minimize the influence of the surrounding environment, including turbulence, which could have an adverse impact on helicopter operations.*

Appendices and Definitions

Appendices

Comprise of materials grouped separately for convenience but forming part of the Standards and Recommended Practices adopted by the Council.

Definitions

Definitions of terms used in the Standards and Recommended Practices which are not self-explanatory in that they do not have accepted dictionary meanings.

A definition does not have independent status but is an essential part of each Standard and Recommended Practice in which the term is used, since a change in the meaning of the term would affect the specification.

Table and Figures

Tables and Figures which add to or illustrate a Standard or Recommended Practice and which are referred to therein, form part of the associated Standard or Recommended Practice and have the same status.

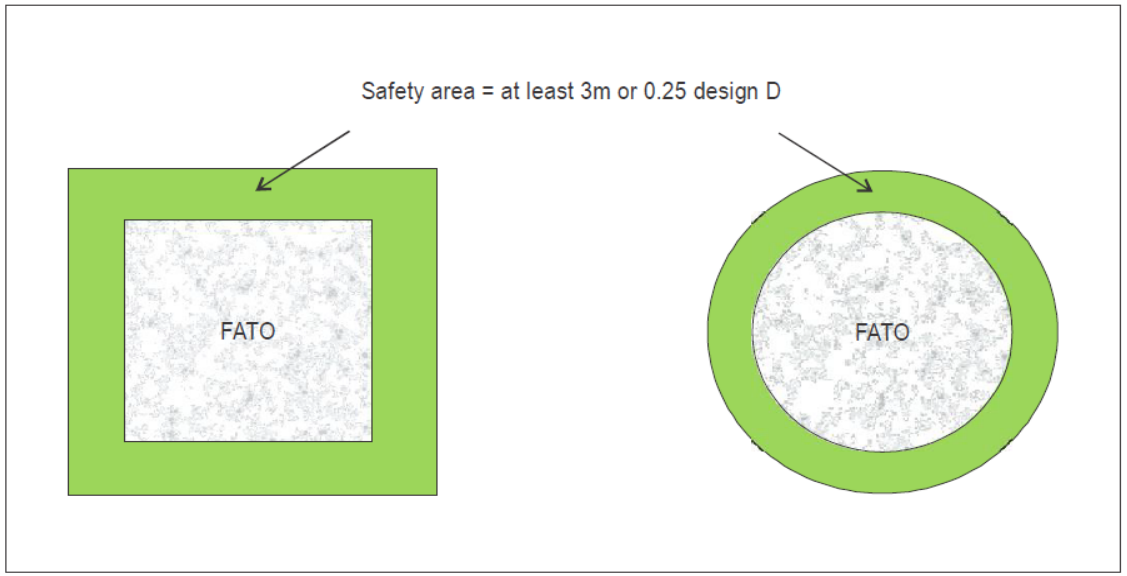

Figure 3-1. FATO and associated safety area

Table 3-1. FATO minimum separation distance for simultaneous operations

If aeroplane mass and/or helicopter mass are	Distance between FATO edge and runway edge or taxiway edge
up to but not including 3 175 kg	60 m
3 175 kg up to but not including 5 760 kg	120 m
5 760 kg up to but not including 100 000 kg	180 m
100 000 kg and over	250 m

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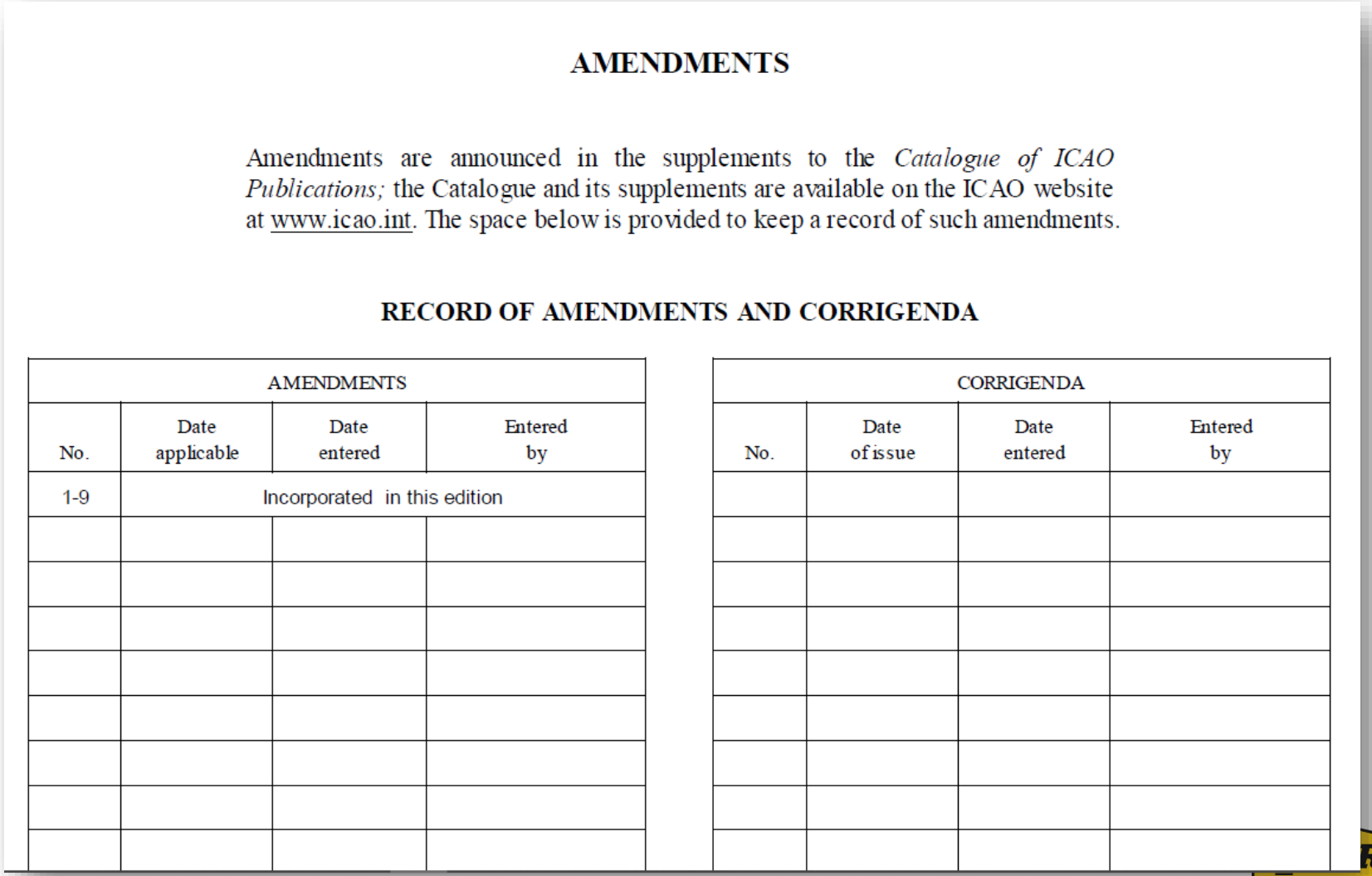
Amendments

- **CORRIGENDUM**
  An error that is to be corrected in a printed work after publication

- **AMENDMENT**
  An alteration or change for the better; correction of a fault



AMENDMENTS

Amendments are announced in the supplements to the *Catalogue of ICAO Publications;* the Catalogue and its supplements are available on the ICAO website at www.icao.int. The space below is provided to keep a record of such amendments.

RECORD OF AMENDMENTS AND CORRIGENDA

AMENDMENTS			
No.	Date applicable	Date entered	Entered by
1-9	Incorporated in this edition		

CORRIGENDA			
No.	Date of issue	Date entered	Entered by

Amendments

Table A. Amendments to Annex 14, Volume II

Amendment	*Source(s)*	*Subject(s)*	*Adopted* *Effective* *Applicable*
1st Edition	Fourth Meeting of the ANC Helicopter Operations Panel; Eleventh Meeting of the ANC Visual Aids Panel and Secretariat	Physical characteristics; obstacle limitation surfaces; visual aids for visual meteorological conditions; rescue and firefighting services.	9 March 1990 30 July 1990 15 November 1990
1 (2nd Edition)	Twelfth Meeting of the ANC Visual Aids Panel and Secretariat	Standard geodetic reference system (WGS-84); frangibility; visual aids for helicopter non-precision approaches; and visual alignment guidance system.	13 March 1995 24 July 1995 9 November 1995
2	Air Navigation Commission	Aeronautical databases and vertical component of the World Geodetic System — 1984 (WGS-84).	21 March 1997 21 July 1997 6 November 1997
3	Fourteenth Meeting of the ANC Visual Aids Panel and Secretariat	Definitions of calendar, datum, Gregorian calendar and obstacle; common reference systems; heliport dimensions and related information; touchdown and lift-off area lighting system; Appendix 1 — Aeronautical Data Quality Requirements.	27 February 2004 12 July 2004 25 November 2004
4 (3rd Edition)	First Meeting of the Aerodromes Panel	Introductory note; definitions of air transit route, declared distances, dynamic load-bearing surface, final approach and take-off area, helicopter air taxiway, helicopter clearway, helicopter ground taxiway, helicopter stand, helideck, obstacle, protection area, rejected take-off area, shipboard heliport, static load-	4 March 2009 20 July 2009 19 November 2009

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INTERNATIONAL CIVIL AVIATION ORGANIZATION

Aerodromes vs Heliports

Aerodromes

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

Heliport

An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Related Publications

Aerodrome Design Manual (Doc 9157)
- Part 1 — *Runways*
- Part 2 — *Taxiways, Aprons and Holding Bays*
- Part 3 — *Pavements*
- Part 4 — *Visual Aids*
- Part 5 — *Electrical Systems*
- Part 6 — *Frangibility*

Aeronautical Information Services Manual (Doc 8126)

Airport Planning Manual (Doc 9184)
- Part 1 — *Master Planning*
- Part 2 — *Land Use and Environmental Control*
- Part 3 — *Guidelines for Consultant/Construction Services*

Airport Services Manual (Doc 9137)
- Part 1 — *Rescue and Fire Fighting*
- Part 2 — *Pavement Surface Conditions*
- Part 3 — *Wildlife Control and Reduction*
- Part 4 — *Fog Dispersal* (withdrawn)
- Part 5 — *Removal of Disabled Aircraft*
- Part 6 — *Control of Obstacles*
- Part 7 — *Airport Emergency Planning*
- Part 8 — *Airport Operational Services*
- Part 9 — *Airport Maintenance Practices*

Heliport Manual (Doc 9261)

https://www.bazl.admin.ch/bazl/en/home/specialists/regulations-and-guidelines/legislation-and-directives/anhaenge-zur-konvention-der-internationalen-zivilluftfahrtorgani/manuals-zu-icao-annex-14.html

Related Publications

Airport Standard Directives by CAAM

ASD 902

Standards for Surface Level Heliport

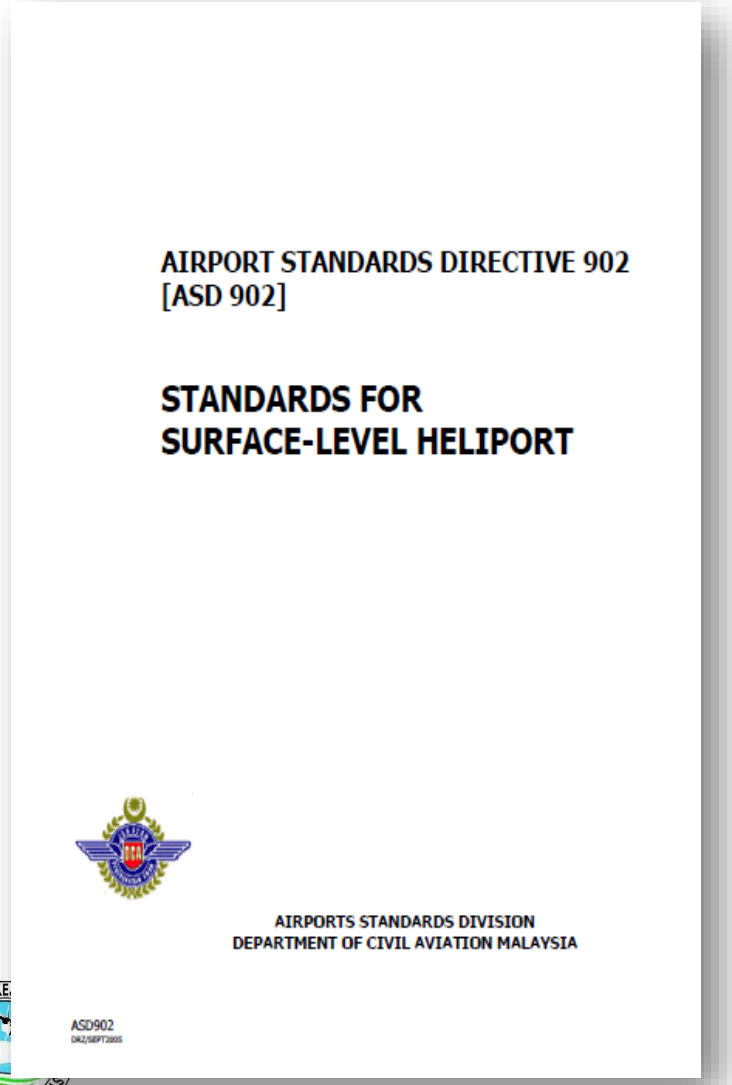
ASD 903

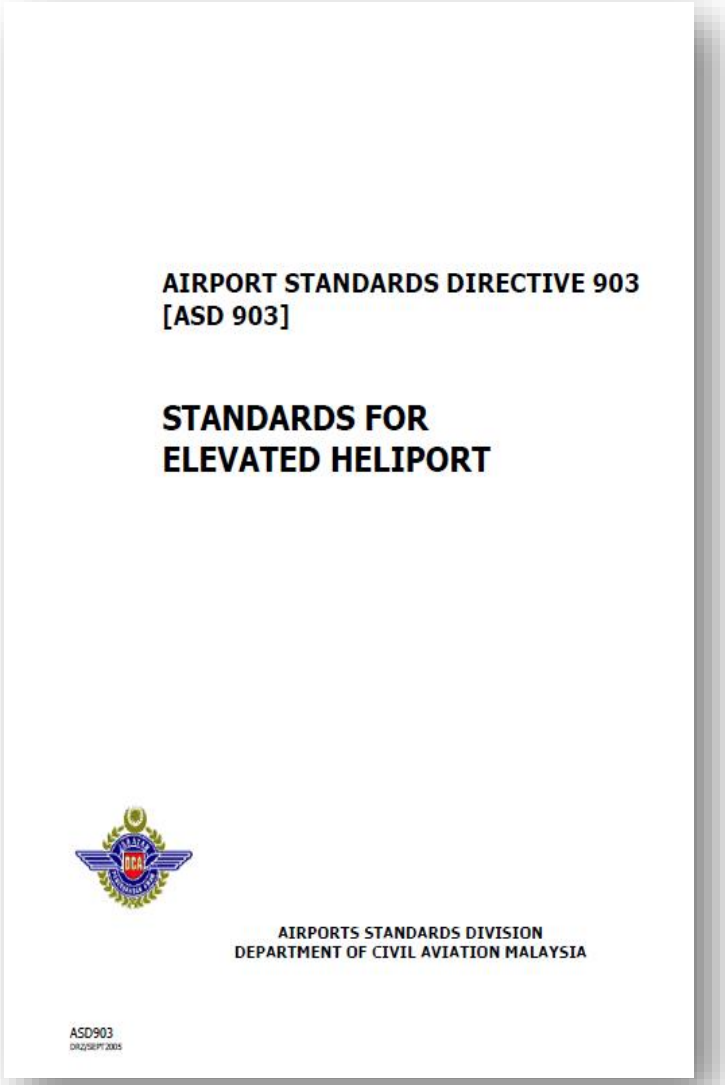
Standards for Elevated Heliport

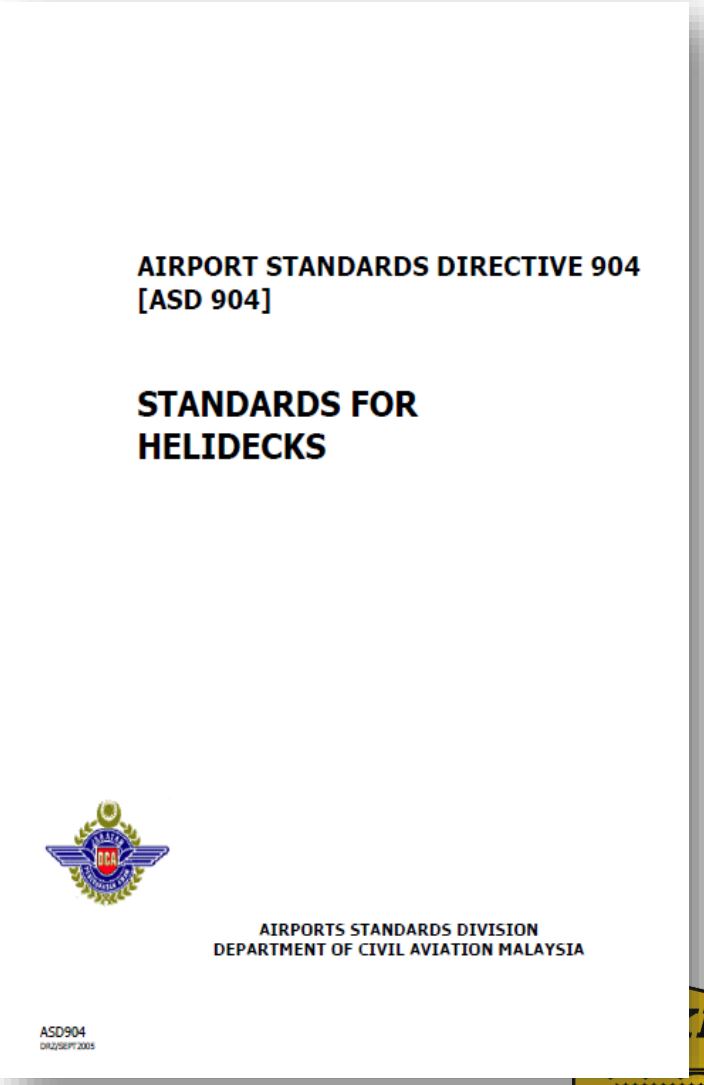
ASD 903

Standards for Helidecks

Related Publications







Annex 14 Vol II: Table of Contents

CHAPTER 1:

GENERAL

1. GENERAL

- **Annex 14 Vol. II contains**
  - Standards and Recommended Practices (specifications) that prescribe the physical characteristics and obstacle limitation surfaces to be provided for at heliports, and certain facilities and technical services normally provided at a heliport. It is not intended that these specifications limit or regulate the operation of an aircraft.
  - When designing a heliport, the critical design helicopter, having the largest set of dimensions and the greatest maximum take-off mass (MTOM) the heliport is intended to serve, would need to be considered.

1. GENERAL

Definitions

The meanings of specialised technical terms used in Annex 14.

Runway-type FATO. A FATO having characteristics similar in shape to a runway.

Safety area. A defined area on a heliport surrounding the FATO which is free of obstacles, other than those required for air navigation purposes, and intended to reduce the risk of damage to helicopters accidentally diverging from the FATO.

Shipboard heliport. A heliport located on a ship that may be purpose or non-purpose-built. A purpose-built shipboard heliport is one designed specifically for helicopter operations. A non-purpose-built shipboard heliport is one that utilizes an area of the ship that is capable of supporting a helicopter but not designed specifically for that task.

Static load-bearing surface. A surface capable of supporting the mass of a helicopter situated upon it.

Surface-level heliport. A heliport located on the ground or on a structure on the surface of the water.

Touchdown and lift-off area (TLOF). An area on which a helicopter may touch down or lift off.

Touchdown/positioning circle (TDPC). A touchdown positioning marking (TDPM) in the form of a circle used for omnidirectional positioning in a TLOF.

1. GENERAL

1.2 Applicability

- The dimensions discussed in this Annex are based on consideration of single-main-rotor helicopters. For tandem-rotor helicopters the heliport design will be based on a case-by-case review

- Applicable for visual heliports

- The specifications of this Annex are not applicable for water heliports (touchdown or lift-off on the surface of the water).

Lat	Lon
60°20,141'N	27°35,485'E
60°24,069'N	26°57,141'E
60°23,816'N	27°39,434'E
60°23,043'N	27°27,252'E
60°29,537'N	27°03,062'E
60°23,053'N	27°16,577'E
60°10,751'N	27°05,432'E
60°23,08'N	27°17,66'E
60°22,61'N	26°38,95'E
60°24,61'N	26°21,94'E

1. GENERAL

1.3 Common Reference Systems

- **Horizontal reference system:**

  World Geodetic System - 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system.

- **Vertical reference system**

  Mean sea level (MSL) datum shall be used as the vertical reference system.

  e.g. Malaysia mean sea level is 3.624m above zero tide gauge

- **Temporal reference system**

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

  UTC is 8 hours slower than Malaysian Time.

1. GENERAL

Certification of aerodromes

Aerodromes used for international operations are to be certified by the State responsible:

- according to Annex 14 specifications,
- through an appropriate regulatory framework, that has established certification criteria and requires a manual with pertinent aerodrome information, and
- that has a Safety Management System in operation

CHAPTER 2:

HELIPORT DATA

APPROVAL AND REGISTRATION OF NON-LICENSED AERODROMES

AIRPORT STANDARDS DIRECTIVE 104
[ASD 104]

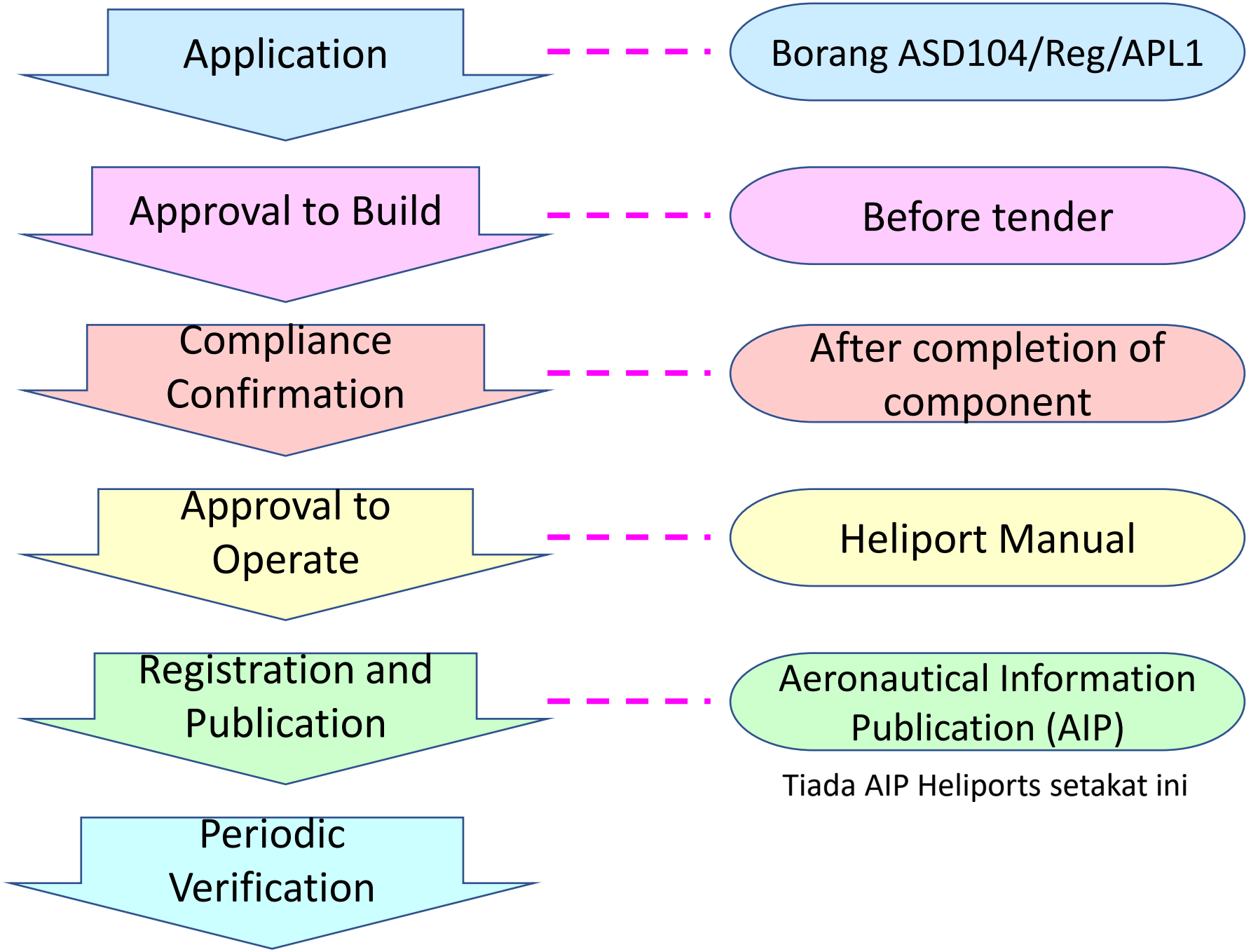
APPROVAL AND REGISTRATION NON-LICENSED AERODROMES

AIRPORTS STANDARDS DIVISION
DEPARTMENT OF CIVIL AVIATION MALAYSIA

NON-LICENSED AERODROME

- The Civil Aviation Act 1969 Section 2B defines the duties of the Director General of Civil Aviation, inter-alia, to encourage, and to ensure safe and orderly, development of aerodromes.
- While the Civil Aviation Regulation 1996, Regulation 97[1] requires aircraft flying for the purpose of public transport to use either a licensed aerodrome, or one belonging to the Government; many other non-public transport aircrafts do or may use non-licensed private aerodromes.
- Notwithstanding the Civil Aviation Regulation 1996, Regulation 57[3] that places the responsibility for ensuring that a flight can safely be made on the commander of the aircraft; the owners and operators of non-licensed aerodromes, including government aerodromes, should ensure that their aerodrome may be used safely by those pilots wishing and permitted to use it.
- **A non-licensed aerodrome is an aerodrome owned and/or operated by person or persons not in possession of an Aerodrome Operating License issued under section 5A or section 24A of the Civil Aviation Act 1969.**

APPROVAL PROCESS



TYPES OF HELIPORTS

TYPES OF HELIPORTS

- Surface level heliports
- Elevated heliports
- Helidecks
- Shipboard heliports

SURFACE LEVEL HELIPORTS

- A heliport located on the ground or on a structure on the surface of the water

ELEVATED HELIPORTS

- A heliport located on a raised structure on land

HELIDECKS

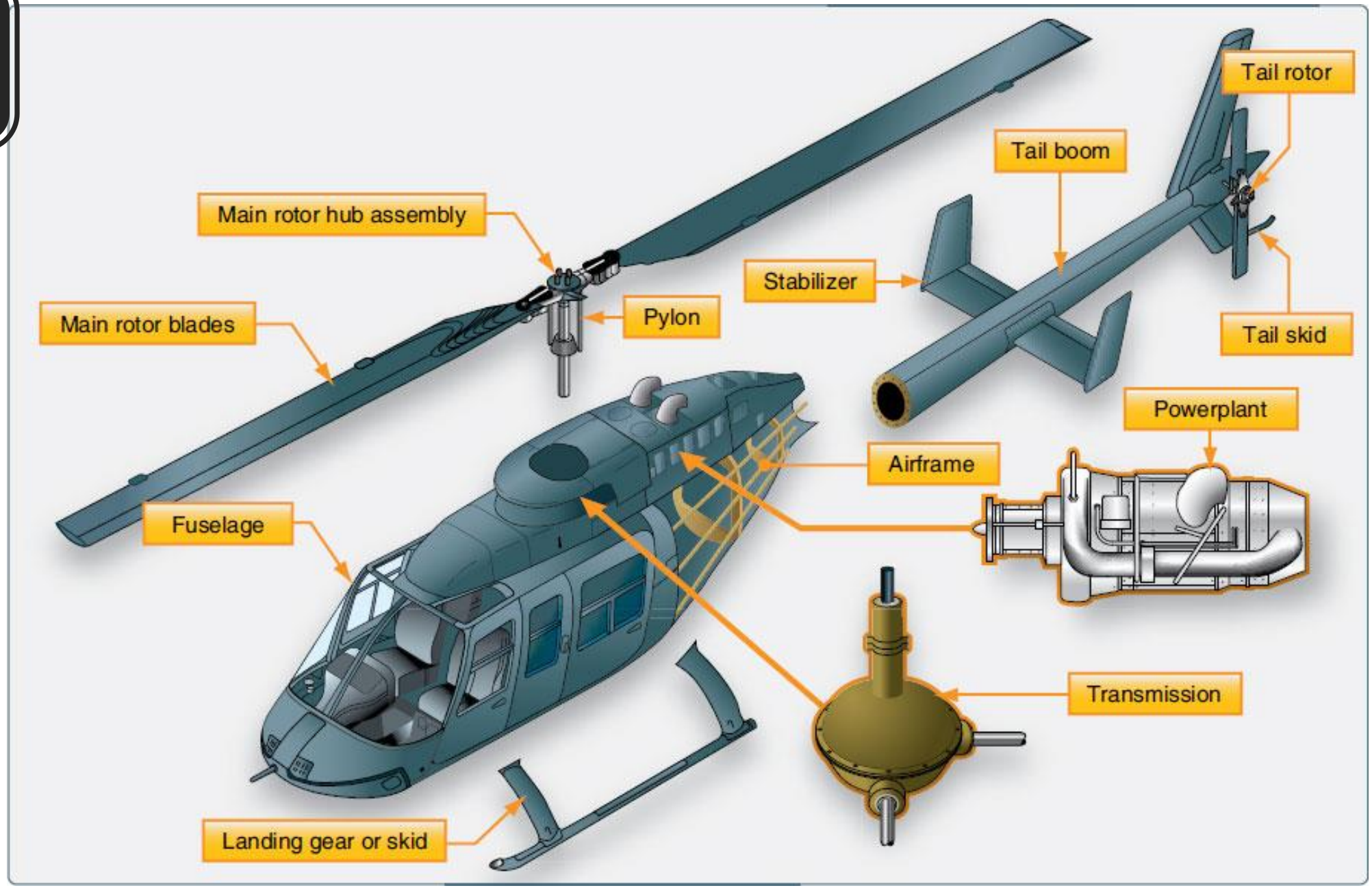
- A heliport located on a fixed or floating offshore facility such as an exploration and/ or production unit used for the exploitation of oil or gas

SHIPBOARD HELIPORTS

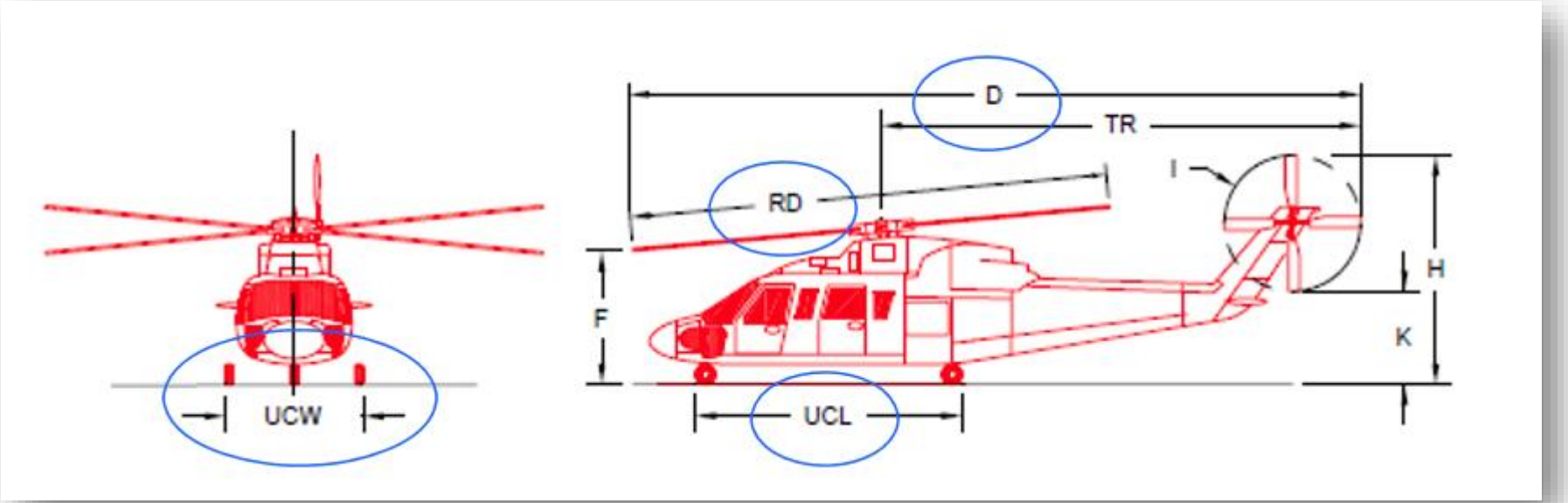
- A heliport located on a ship that may be purpose or non-purpose built. A purpose built shipboard heliport is one designed specifically for helicopter operations.
- A non purpose built heliport is one that utilizes an area of the ship that is capable of supporting a helicopter but not designed specifically for that task.

HELICOPTER DIMENSIONS AND REQUIRED DATA

Helicopter Structures



HELICOPTER DIMENSIONS



- Maximum weight
- Contact area (nos. of gears or landing skids)
- Overall length (D)
- Rotor diameter (RD)
- Undercarriage dimensions
- Static load : maximum takeoff weight (MTOW)
- Dynamic load: 150% of MTOW

HELICOPTER PERFORMANCE

- **Performance Class 1 / Group A**
  - A helicopter with performance such that, in the case of a critical power unit failure, it is able to land on the rejected take off area or safely continue the flight to an appropriate landing area, depending upon when the failure occurs.
- **Performance Class 2/ Group A (Restricted)**
  - A helicopter with performance such that in case of a critical power unit failure, it is able to safely continue the flight, except when the failure occurs prior to a defined point after takeoff or after a defined point before landing, in which case a forced landing may be required.
- **Performance Class 3/ Group B**
  - A helicopter with performance such that in case of a power unit failure at any point in the flight profile, a forced landing must be performed.

DESIGN STRENGTH

- Heliport structure should be designed to cater:
  - Design static load = helicopter's maximum certificated take off weight applied through the total contact area of the wheels or skids
  - Dynamic load = > 150 % of the maximum certificated take off weight transmitted through the main wheels or through the contact areas of a skid or wheel equipped helicopter.

HELICOPTER EC725 TUDM

1. What is the maximum take off weight (MTOW)?
2. What is the overall length (D)?
3. What is the Rotor diameter (RD)
4. What is the maximum height (H)?
5. What is the Under carriage width (UCW)?
6. Maximum Fuselage Width
7. Fuselage Length

HELICOPTER AW139

1. What is the maximum take off weight (MTOW)?
2. What is the overall length (D)?
3. What is the Rotor diameter (RD)
4. What is the maximum height (H)?
5. What is the Under carriage width (UCW)?
6. Maximum Fuselage Width
7. Fuselage Length

HELICOPTER Mil-17-1A2

1. What is the maximum take off weight (MTOW)?
2. What is the overall length (D)?
3. What is the Rotor diameter (RD)
4. What is the maximum height (H)?
5. What is the Under carriage width (UCW)?
6. Maximum Fuselage Width
7. Fuselage Length

CHAPTER 3:

PHYSICAL CHARACTERISTICS

COMPONENTS OF HELIPORT

COMPONENTS

- **Final Approach and Take Off Area (FATO)**

  A defined area over which the final phase of the approach maneuver to hover or landing is completed and from which the take off maneuver is commenced

  All final approaches shall terminate at the FATO and all take-offs to climb shall start at the FATO. A touchdown or lift off may or may not be made at the FATO

- **Touchdown and Lift Off Area (TLOF)**

  An area on which a helicopter may touch down or lift off.

  A TLOF may or may not be located within the FATO

  Support static and dynamic loads

- **Safety Area**

  A defined area on a heliport surrounding the FATO which is free of obstacles, other than those required for air navigation purposes, and intended to reduce the risk of damage to helicopters accidentally diverging from the FATO

COMPONENTS

- **Protection Area**
  A defined area surrounding a stand intended to reduce the risk of damage from helicopters accidentally diverging from the stand

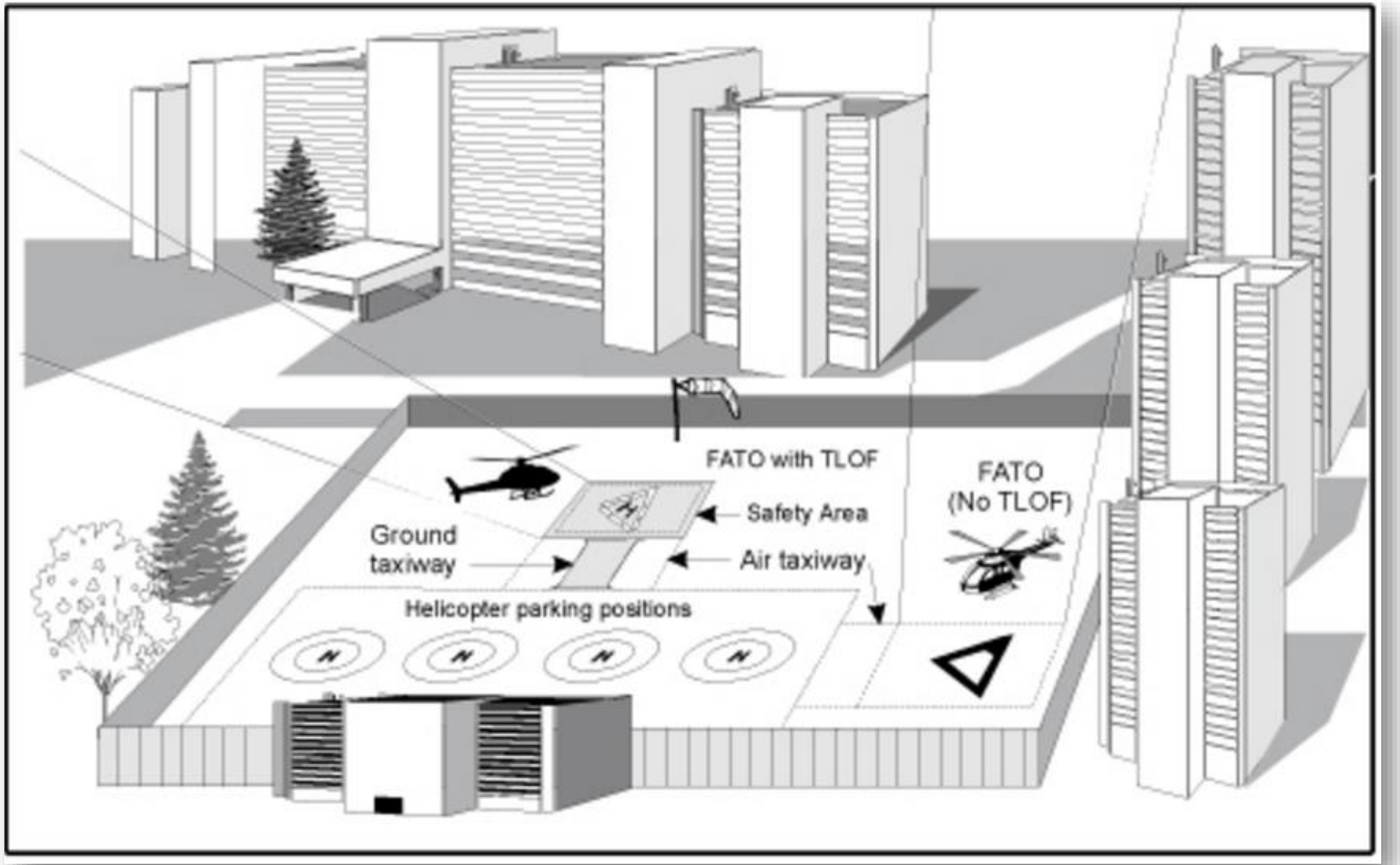
- **Helicopter Air Taxi Route**
  A marked taxi route intended for air taxiing

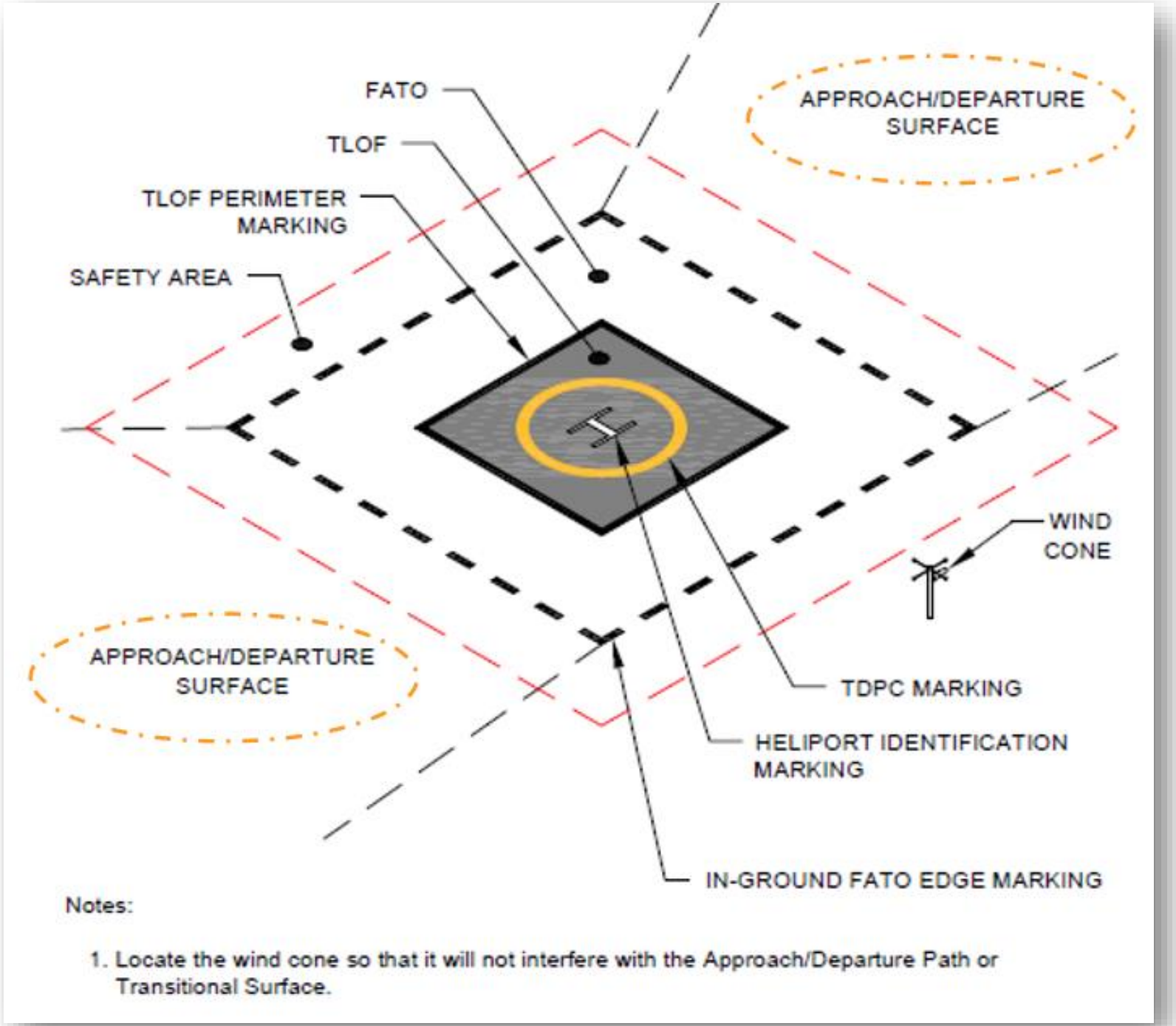
- **Helicopter Ground Taxi Route**

  A taxi route centred on a taxiway

- **Helicopter Stand**

  An aircraft stand which provides for parking a helicopter and where ground taxi operations are completed or where the helicopter touches down and lifts off for air taxi operations


FATO with TLOF
Safety Area
Air taxiway
Ground taxiway
Helicopter parking positions
FATO (No TLOF)



Notes:

1. Locate the wind cone so that it will not interfere with the Approach/Departure Path or Transitional Surface.

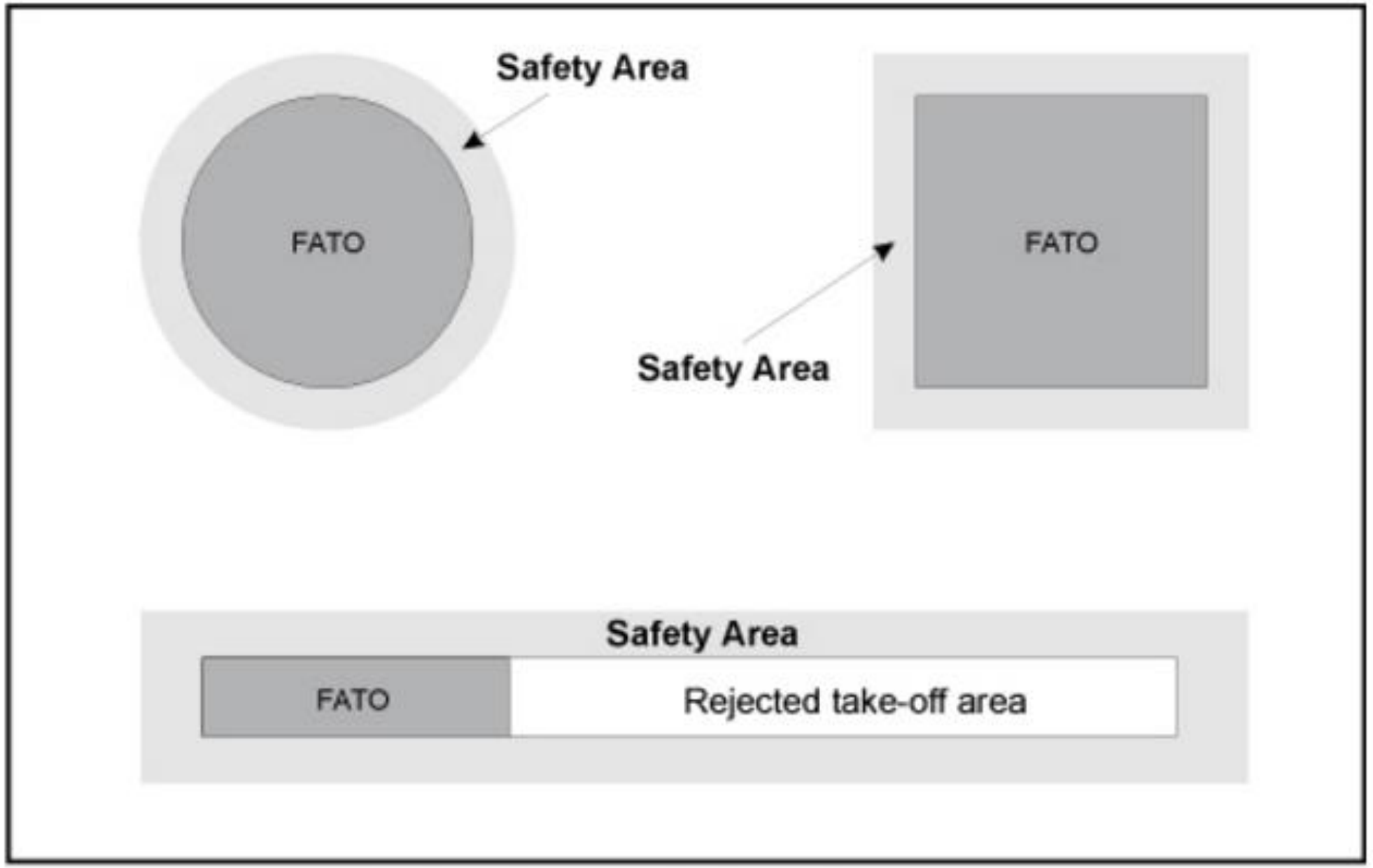
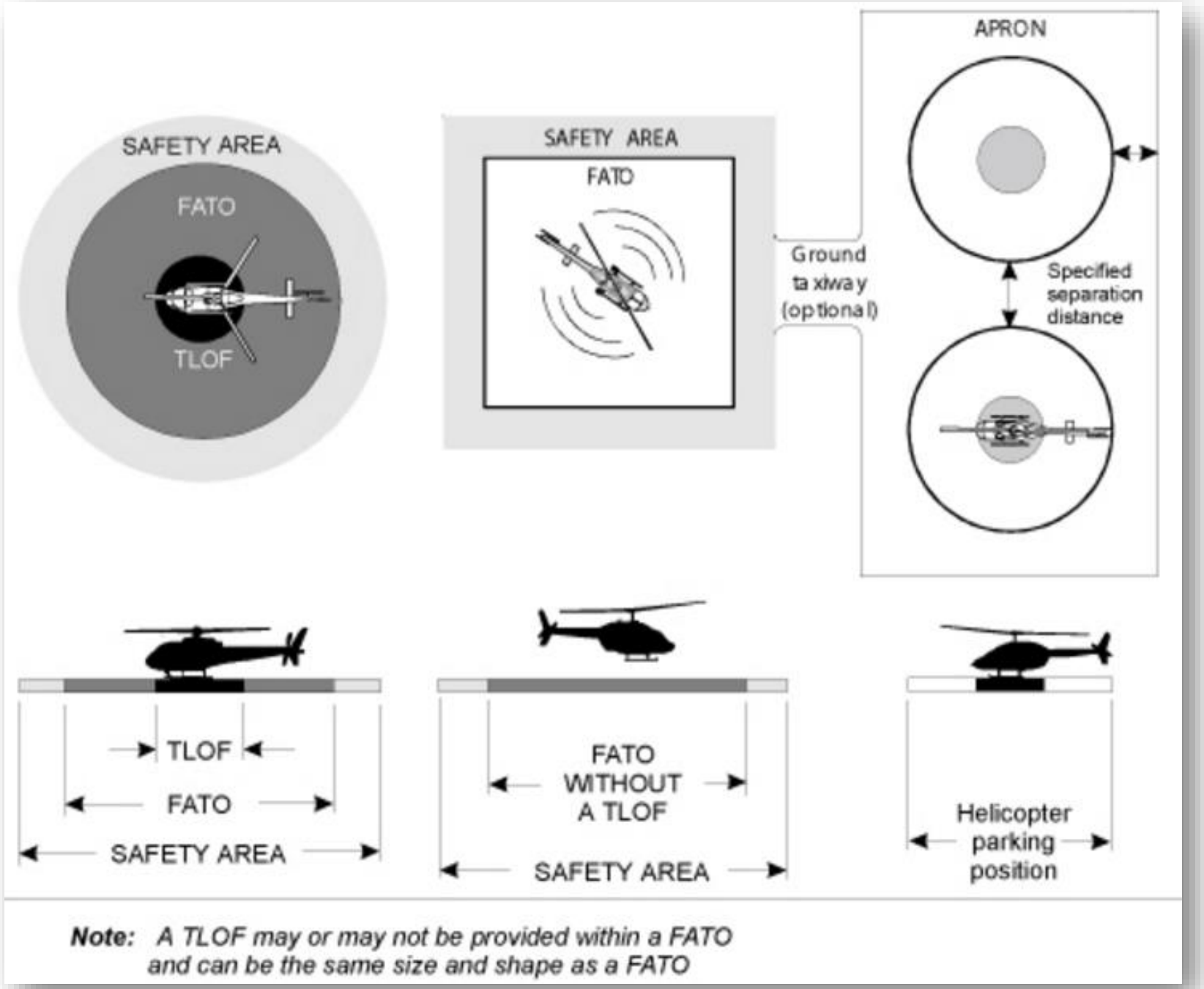


Figure 3-2. Location and orientation of safety area


SAFETY AREA
FATO
TLOF
SAFETY AREA
FATO
Ground taxiway (optional)
APRON
Specified separation distance
TLOF
FATO
SAFETY AREA
FATO WITHOUT A TLOF
SAFETY AREA
Helicopter parking position
Note: A TLOF may or may not be provided within a FATO and can be the same size and shape as a FATO

Final Approach and Take Off (FATO)

- An area free of obstacles, except for essential objects which because of their function are located on it
- Sufficient size and shape to ensure containment of every part of the design helicopter
- When solid, a surface which is resistant to the effects of rotor downwash
- When collocated with a TLOF, is contiguous and flush with the TLOF, has bearing strength capable of withstanding the intended loads and ensures effective drainage
- When not collocated with a TLOF, is free of hazards should a forced landing be required;

Final Approach and Take Off (FATO)

- A heliport shall be provided with at least one FATO, which need not be solid.
- FATO = 1.5 D
- When FATO is solid, essential objects in the FATO should not be > 5cm
- Slopes on FATO < 2% in any direction
- FATO shall be surrounded by a safety area which need not be solid

Location of FATO in Relation to a Rwy or Twy

Table 3-1. FATO minimum separation distance for simultaneous operations

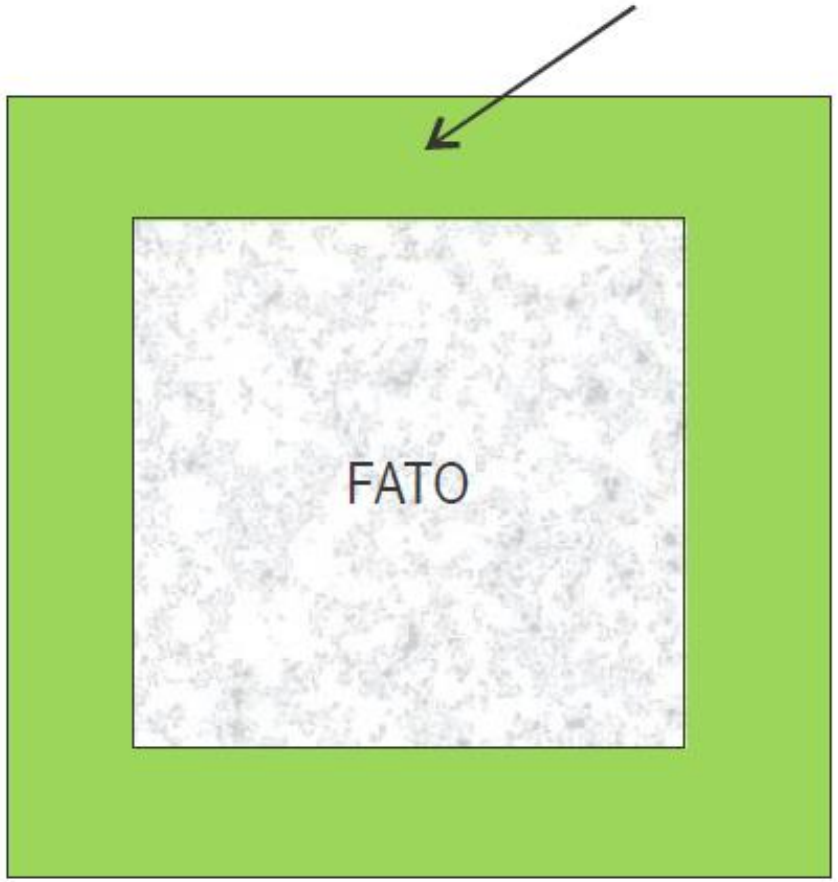
If aeroplane mass and/or helicopter mass are	Distance between FATO edge and runway edge or taxiway edge
up to but not including 3 175 kg	60 m
3 175 kg up to but not including 5 760 kg	120 m
5 760 kg up to but not including 100 000 kg	180 m
100 000 kg and over	250 m

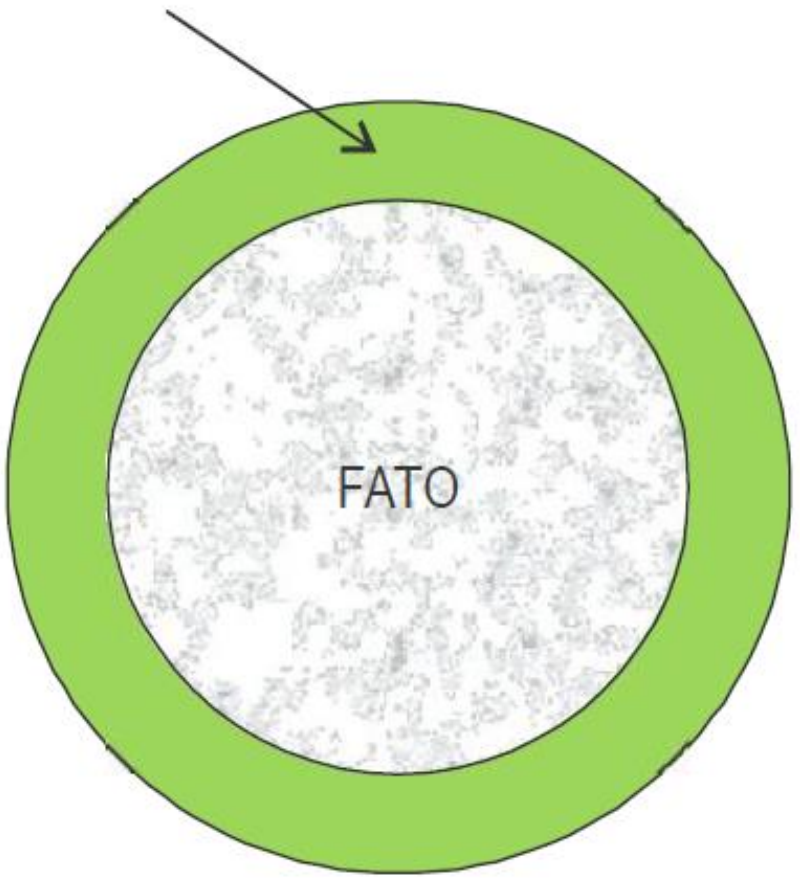
Safety Areas

- An area free of obstacles, except for essential objects which because of their function are located on it, to compensate for manoeuvring errors
- When solid, a surface which is contiguous and flush with the FATO, is resistant to the effects of rotor downwash and ensures effective drainage
- Extend outwards from the periphery of the FATO for a distance of at least 3 m or 0.25 D, whichever is greater
- No mobile object shall be permitted in a safety area during helicopter operations.
- Essential objects located in the safety area shall not penetrate a surface originating at the edge of the FATO at a height of 25 cm above the plane of the FATO sloping upwards and outwards at a gradient of 5 per cent.
- When solid, the slope of the safety area should not exceed an upward slope of 4 per cent outwards from the edge of the FATO.

SAFETY AREAS

Safety area = at least 3m or 0.25 design D



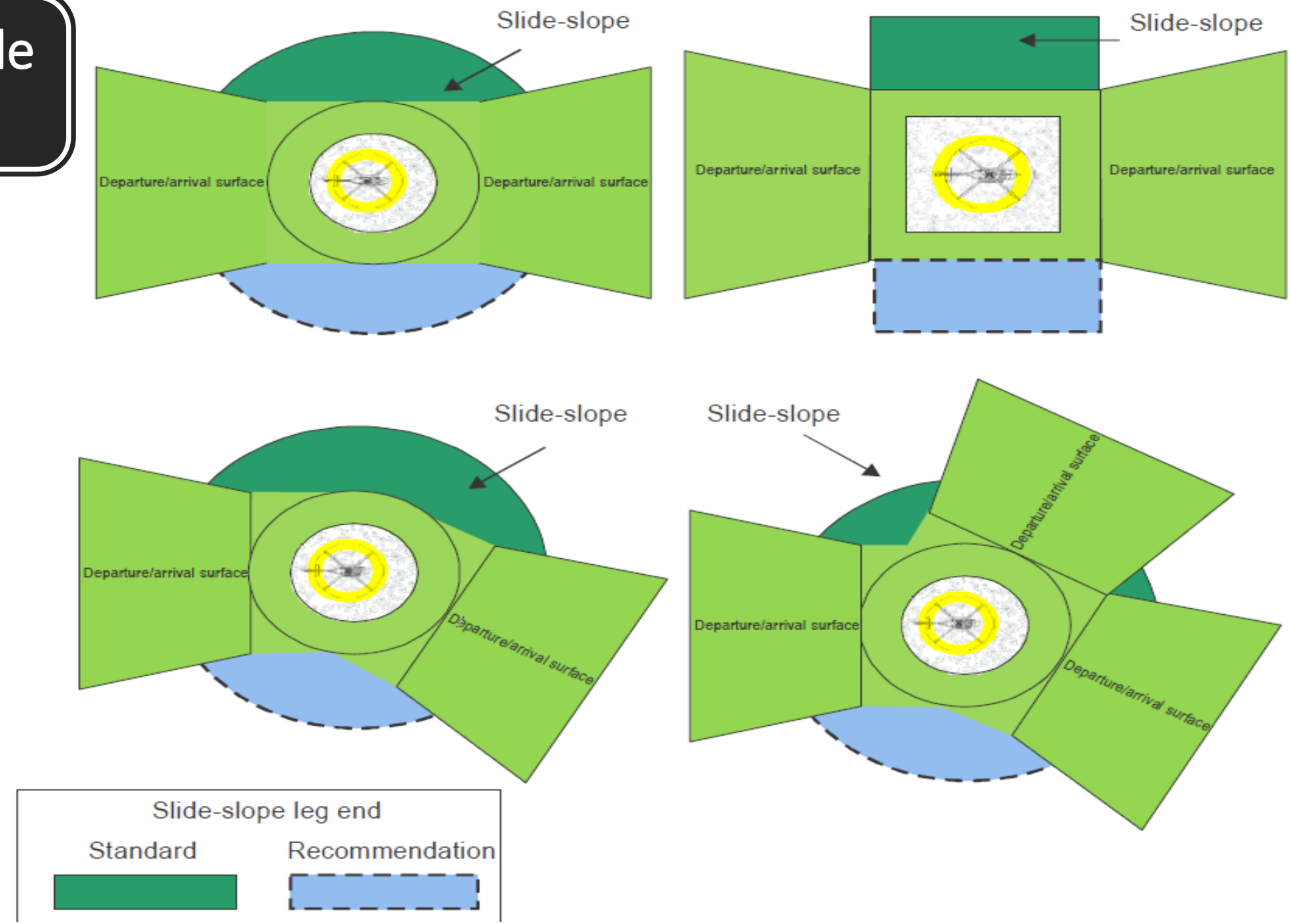


Protected Side Slope

- A heliport shall be provided with at least one protected side slope, rising at 45 degrees from the edge of the safety area and extending to a distance of 10 m

- The surface of a protected side slope shall not be penetrated by obstacles.

Protected Side Slope



Touchdown and Lift-Off Area (TLOF)

- An area free of obstacles and of sufficient size and shape to ensure containment of the undercarriage of the most demanding helicopter the TLOF is intended to serve in accordance with the intended orientation;
- A surface which:

i) has sufficient bearing strength to accommodate the dynamic loads associated with the anticipated type of arrival of the helicopter at the designated TLOF;

ii) is free of irregularities that would adversely affect the touchdown or lift-off of helicopters;

iii) has sufficient friction to avoid skidding of helicopters or slipping of persons; and

iv) is resistant to the effects of rotor downwash;

v) ensures effective drainage while having no adverse effect on the control or stability of a helicopter during touchdown and lift-off, or when stationary;

Touchdown and Lift-Off Area (TLOF)

- A TLOF shall be associated with a FATO or a stand.
- A heliport shall be provided with at least one TLOF.
- A TLOF shall be provided whenever it is intended that the undercarriage of the helicopter will touch down within a FATO or stand, or lift off from a FATO or stand.
- The slope on a TLOF < 2 per cent in any direction;
- When a TLOF is within a FATO, it should be centred on the FATO or helicopter stand
- A TLOF shall be provided with markings which clearly indicate the touchdown position.
- Safety devices such as safety nets or safety shelves shall be located around the edge of an elevated heliport but shall not exceed the height of the TLOF.

Touchdown and Lift-Off Area (TLOF)

- When a TLOF is within a FATO, TLOF = FATO = 1.5D (ASD 902)
- When there is no limitation on the direction of touchdown TLOF = 0.83 D
- When there is a limitation on the direction of touchdown TLOF = 2 x (UCW)
- For an elevated heliport, the minimum dimensions of a TLOF, when in a FATO, TLOF = 1 D

Helicopter Taxiway

- An area free of obstacles and of sufficient width to ensure containment of the undercarriage of the most demanding wheeled helicopter the taxiway is intended to serve;
- A surface which:

  i) has bearing strength to accommodate the taxiing loads of the helicopters the taxiway is intended to serve;

  ii) is free of irregularities that would adversely affect the ground taxiing of helicopters

  iii) is resistant to the effects of rotor downwash;

  iv) ensures effective drainage while having no adverse effect on the control or stability of a wheeled helicopter when being manoeuvred under its own power, or when stationary

- Shall be associated with a taxi-route.

Helicopter Taxiway

- Helicopter taxiway = 2 x (UCW)
- Transverse slope of a taxiway < 2 per cent
- Longitudinal slope should < 3 per cent.

Helicopter Taxi Routes

- An area free of obstacles, except for essential objects which because of their function are located on it
- An area established for the movement of helicopters; of sufficient width to ensure containment of the largest helicopter the taxi-route is intended to serve
- When solid, a surface which is resistant to the effects of rotor downwash
- When collocated with a taxiway:

  i) is contiguous and flush with the taxiway

  ii) does not present a hazard to operations

  iii) ensures effective drainage
- When not collocated with a taxiway, is free of hazards should a forced landing be required.
- No mobile object shall be permitted on a taxi-route during helicopter operations.

Helicopter Ground Taxi Routes

- Helicopter ground taxi-route = 1.5 D

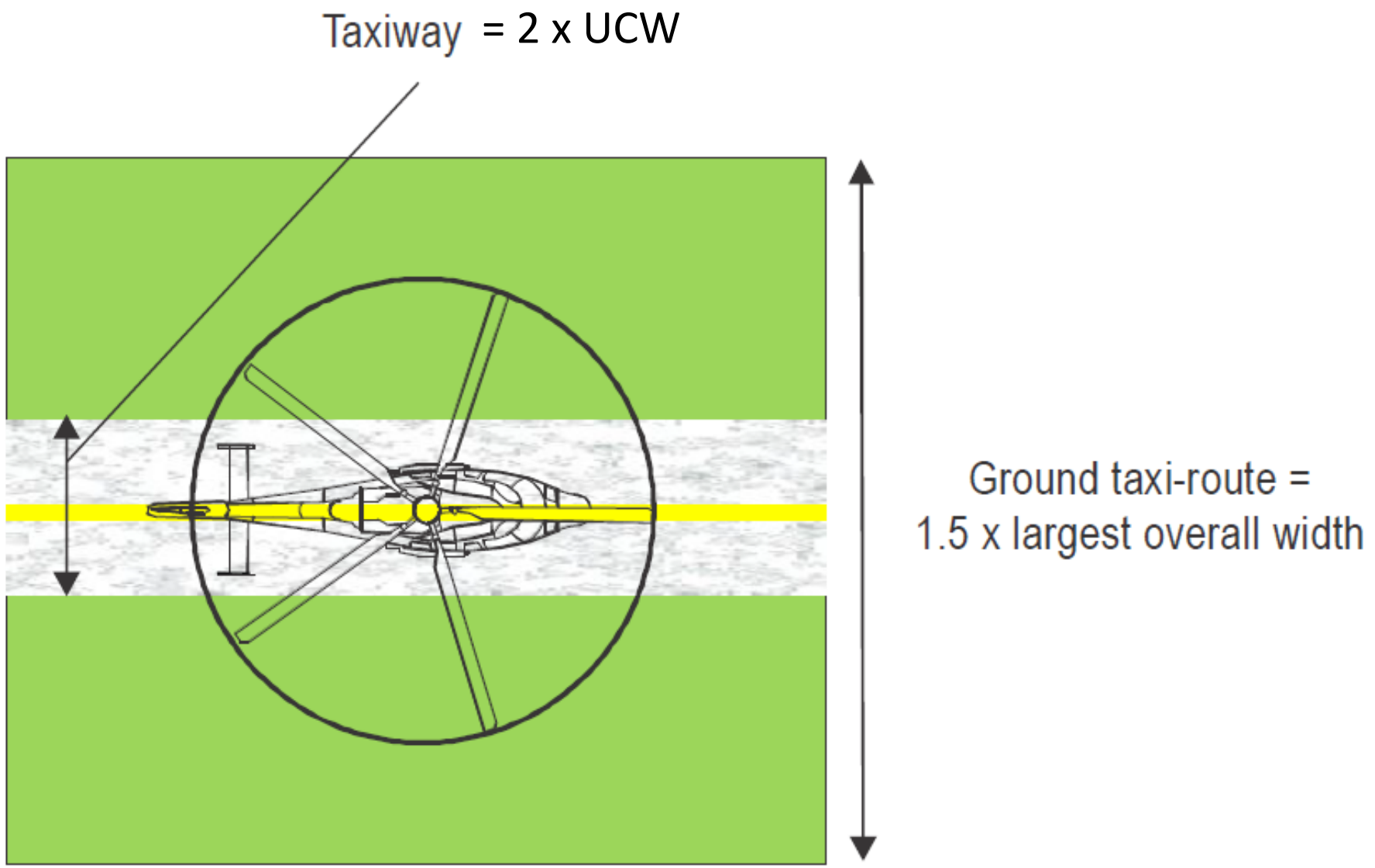
- Essential objects located in a helicopter ground taxi-route shall not:

  a) be located at a distance of less than 50 cm outwards from the edge of the helicopter taxiway

  b) penetrate a surface originating 50 cm outwards of the edge of the helicopter taxiway and a height of 25 cm above the surface of the taxiway and sloping upwards and outwards at a gradient of 5 per cent.

- Transverse slope < 4 per cent outwards from the edge of the taxiway.

Helicopter Ground Taxi Routes



Helicopter Air Taxi Routes

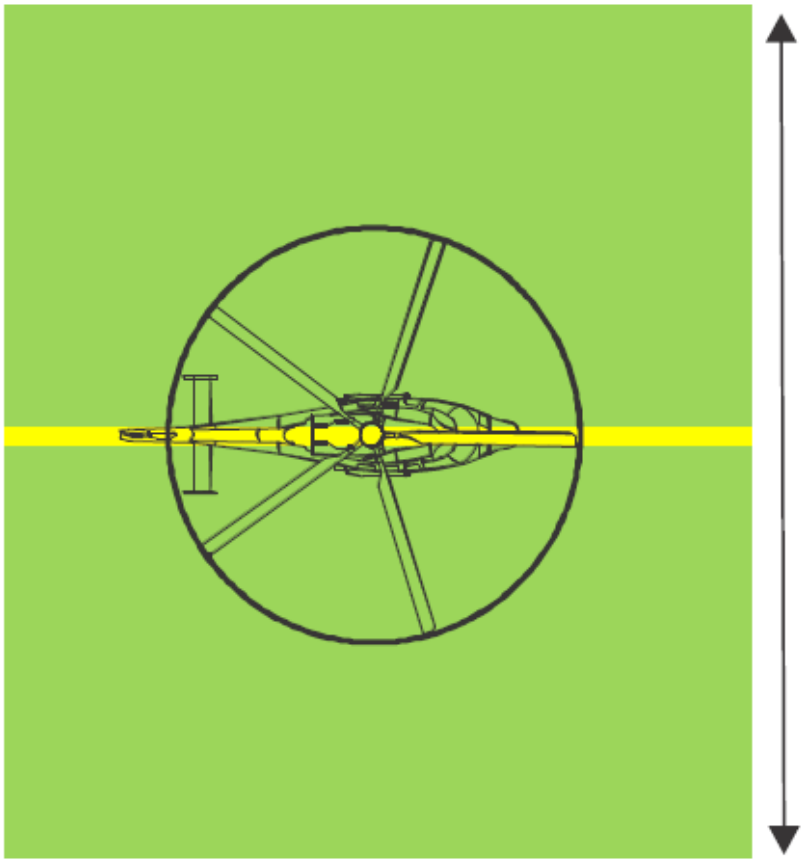
- A helicopter air-taxi route is intended to permit the movement of a helicopter above the surface at a height normally associated with ground effect and at ground speed less than 37 km/h.
- Helicopter air taxi-route = 2 D
- Essential objects located in the helicopter air taxi-route shall not:

  a) be located at a distance of less than 50 cm outwards from the edge of the helicopter taxiway;

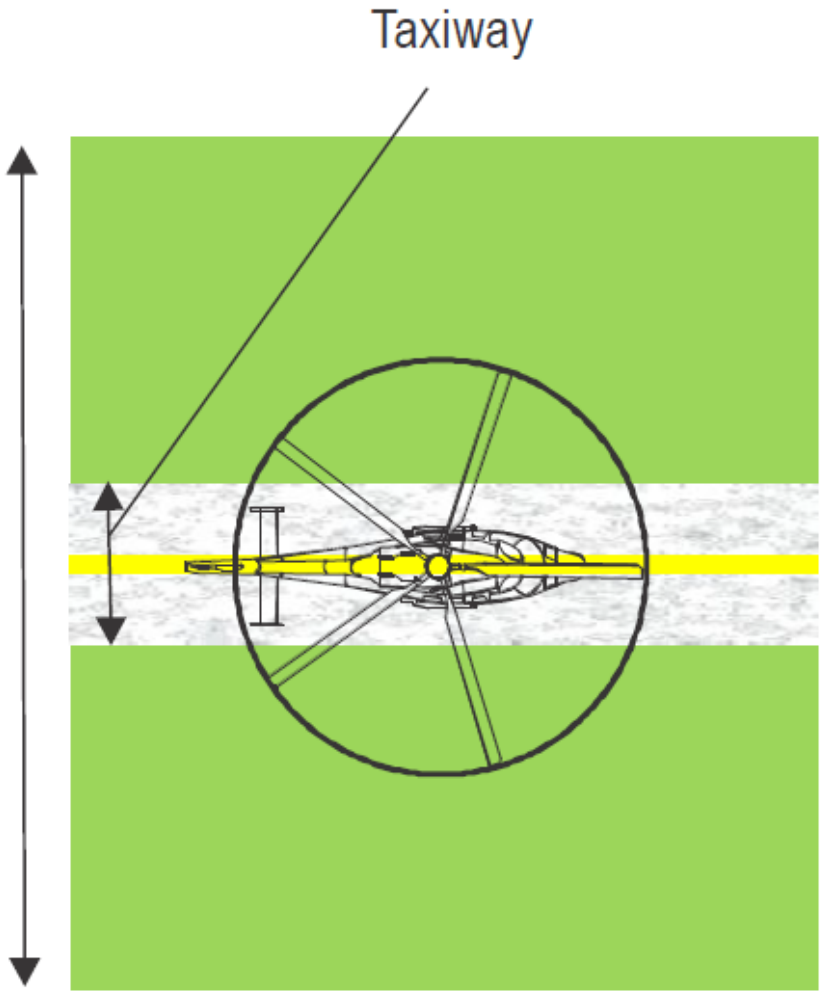
  b) penetrate a surface originating 50 cm outwards of the edge of the helicopter taxiway and a height of 25 cm above the surface of the taxiway and sloping upwards and outwards at a gradient of 5 per cent.

- Transverse slope < 10 per cent outwards from the edge of the taxiway
- Longitudinal slope < 7 per cent.

Helicopter Air Taxi Routes



Air taxi-route =
2 x largest overall width



Helicopter Stand

- An area free of obstacles and of sufficient size and shape to ensure containment of every part of the largest helicopter the stand is intended to serve when it is being positioned within the stand
- A surface which:

a) is resistant to the effects of rotor downwash;

b) is free of irregularities that would adversely affect the manoeuvring of helicopters;

c) has bearing strength capable of withstanding the intended loads;

d) has sufficient friction to avoid skidding of helicopters or slipping of persons;

e) ensures effective drainage while having no adverse effect on the control or stability of a wheeled helicopter when being manoeuvred under its own power, or when stationary;

f) associated with a protection area

Helicopter Stand

- Helicopter stand = a circle of diameter of 1.2 D
- Slope of a helicopter stand in any direction < 2 per cent.
- Each helicopter stand shall be provided with positioning markings to clearly indicate where the helicopter is to be positioned and, by their form, any limitations on manoeuvring.
- A stand shall be surrounded by a protection area which need not be solid.

Protection Areas

- An area free of obstacles, except for essential objects which because of their function are located on it
- When solid, a surface which is contiguous and flush with the stand, is resistant to the effects of rotor downwash and ensures effective drainage.
- When associated with a stand designed for turning, the protection area shall extend outwards from the periphery of the stand for a distance of 0.4 D
- When associated with a stand designed for taxi-through, the minimum width of the stand and protection area shall not be less than the width of the associated taxi-route
- When associated with a stand designed for non-simultaneous use:

  a) the protection area of adjacent stands may overlap but shall not be less than the required protection area for the larger of the adjacent stands

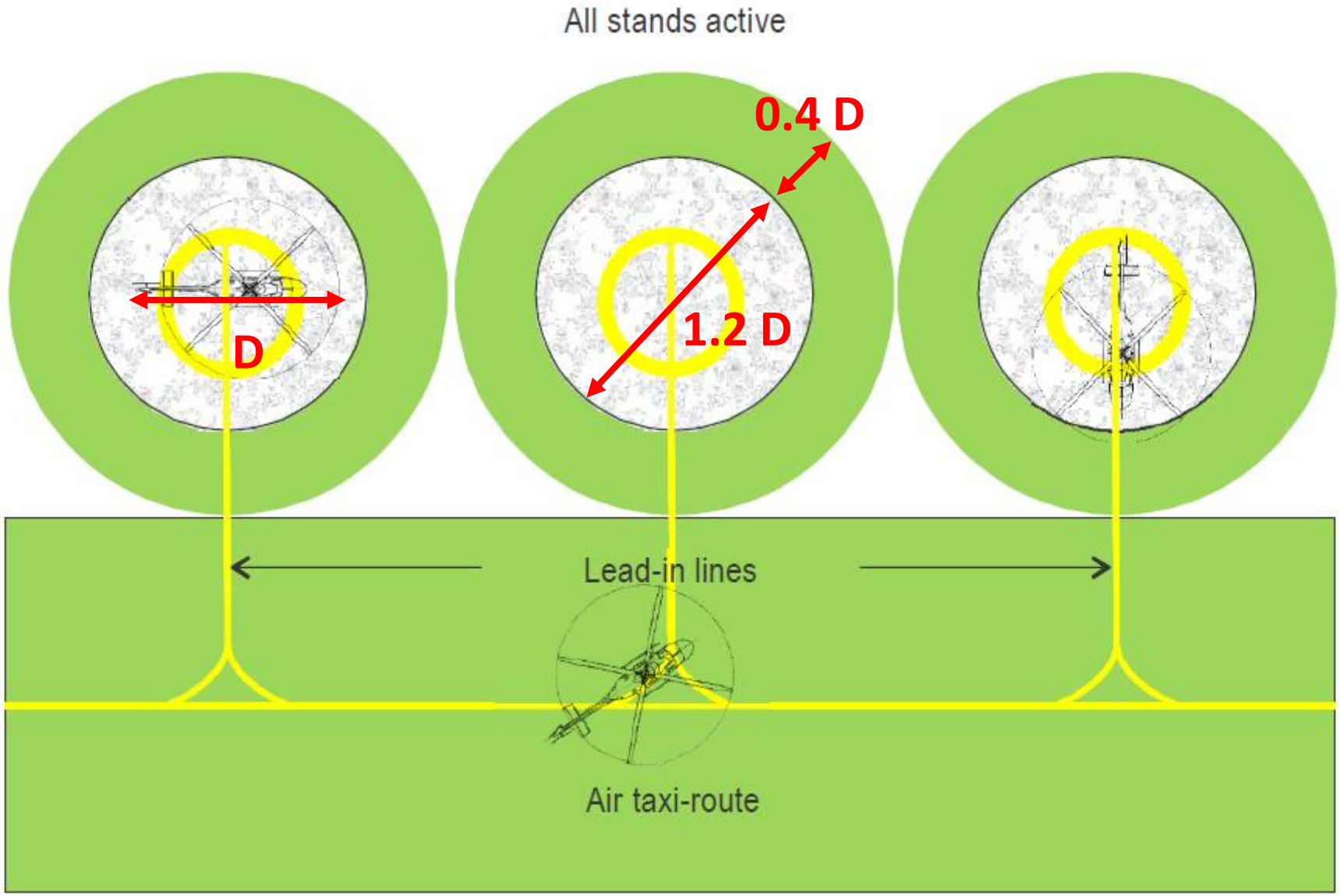
  b) the adjacent non-active stand may contain a static object but it shall be wholly within the boundary of the stand.

- To ensure that only one of the adjacent stands is active at a time, instruction to pilots in the AIP make clear that a limitation on the use of the stands is in force.

Protection Areas

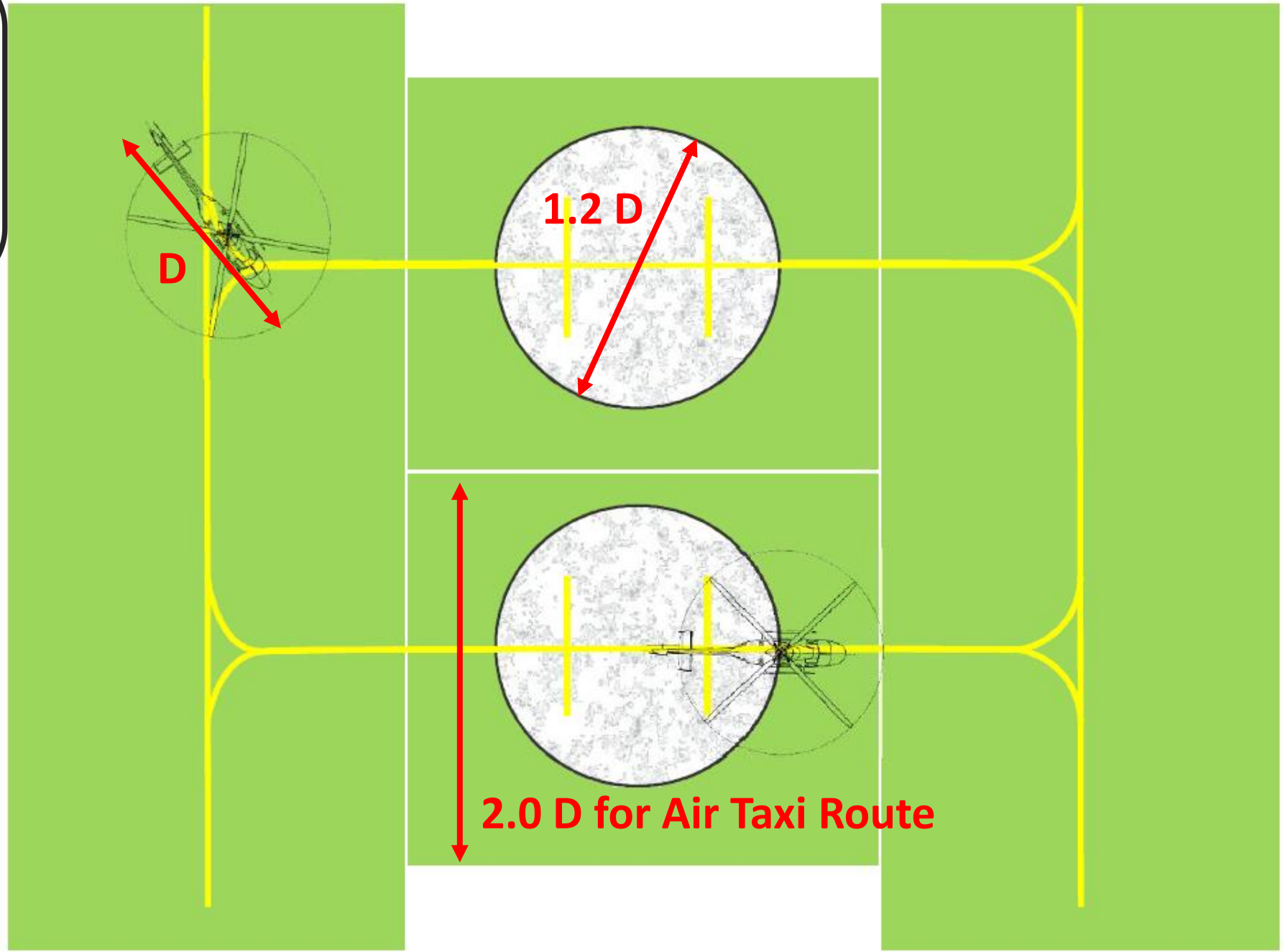
- Essential objects located in the protection area shall not:
  a) if located at a distance of less than 0.75 D from the centre of the helicopter stand, penetrate a surface at a height of 5 cm above the surface of the central zone; and
  b) if located at a distance of 0.75 D or more from the centre of the helicopter stand, penetrate a surface at a height of 25 cm above the plane of the central zone and sloping upwards and outwards at a gradient of 5 per cent .
- When solid, the slope of a protection area < 4 percent outwards from the edge of the stand.
- No mobile object shall be permitted in a protection area during helicopter operations.

Turning Stands & Protection Area (Simultaneous use)

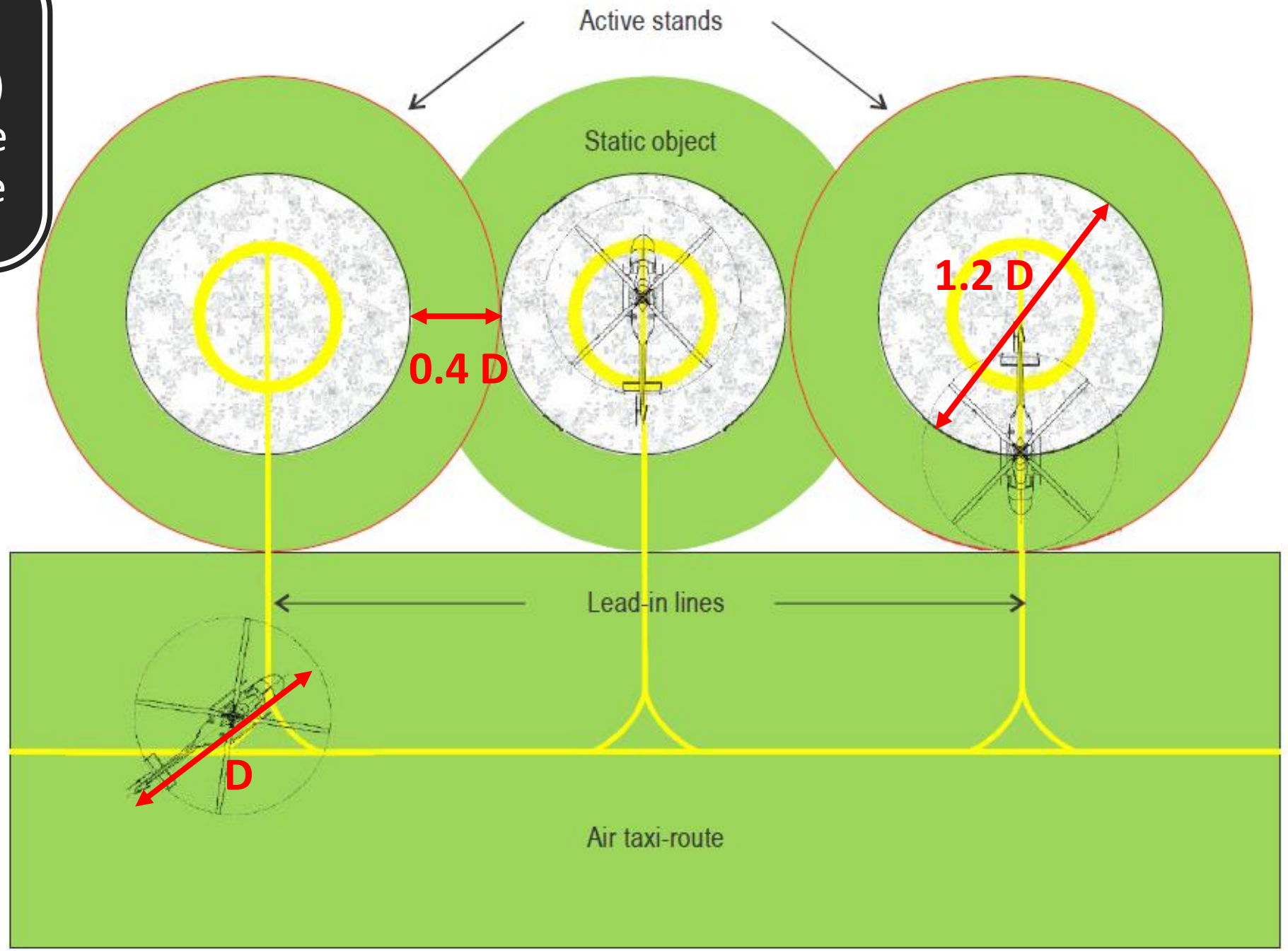


Ground Taxi-Through Stands (With Taxiway/ Ground Taxi -Route) Simultaneous Use

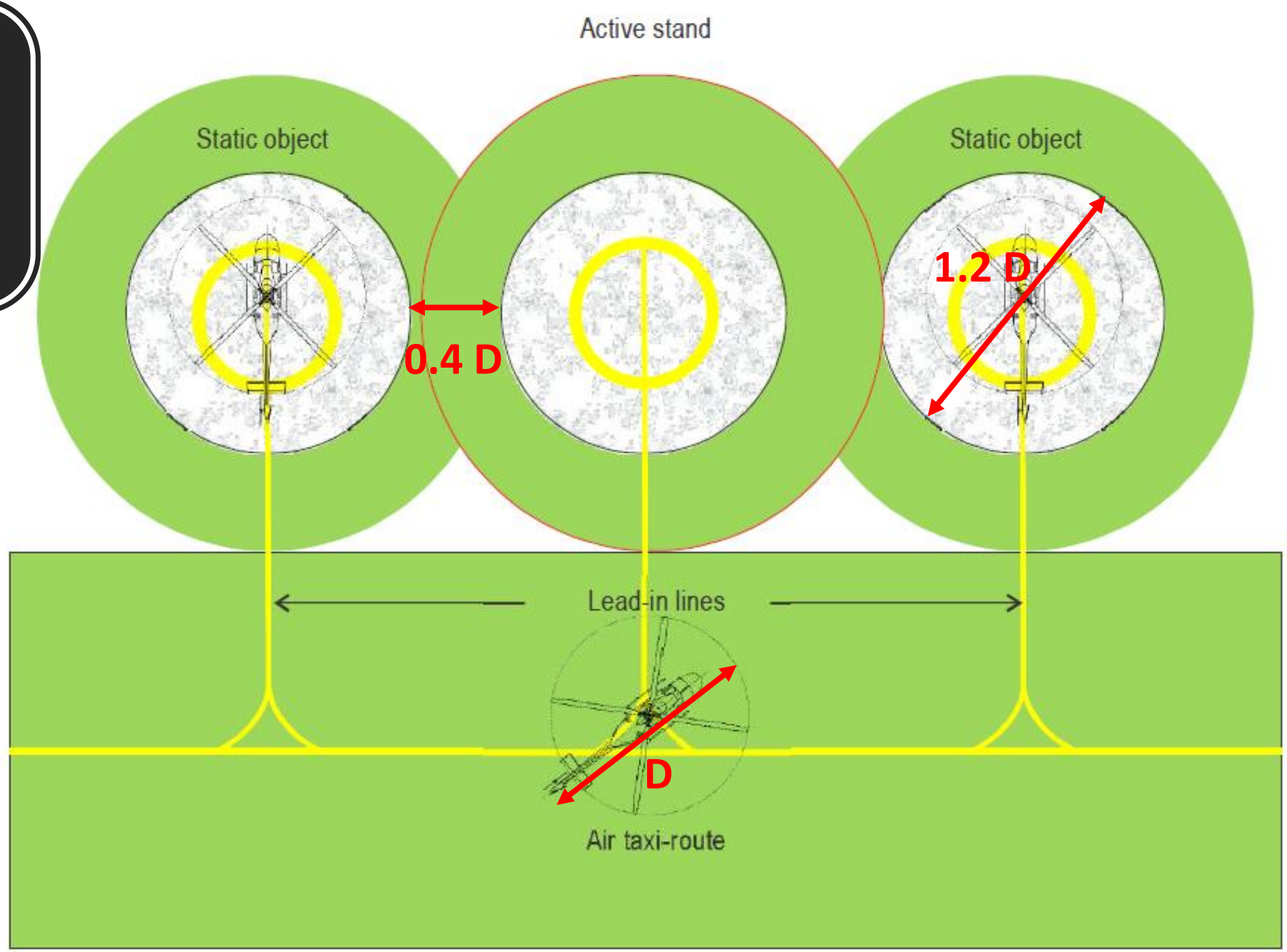
Air Taxi-Through Stands (With Air Taxi -Route) Simultaneous Use



Turning Stands (With Air Taxi -Routes) Non-simultaneous Use — Outer Stands Active



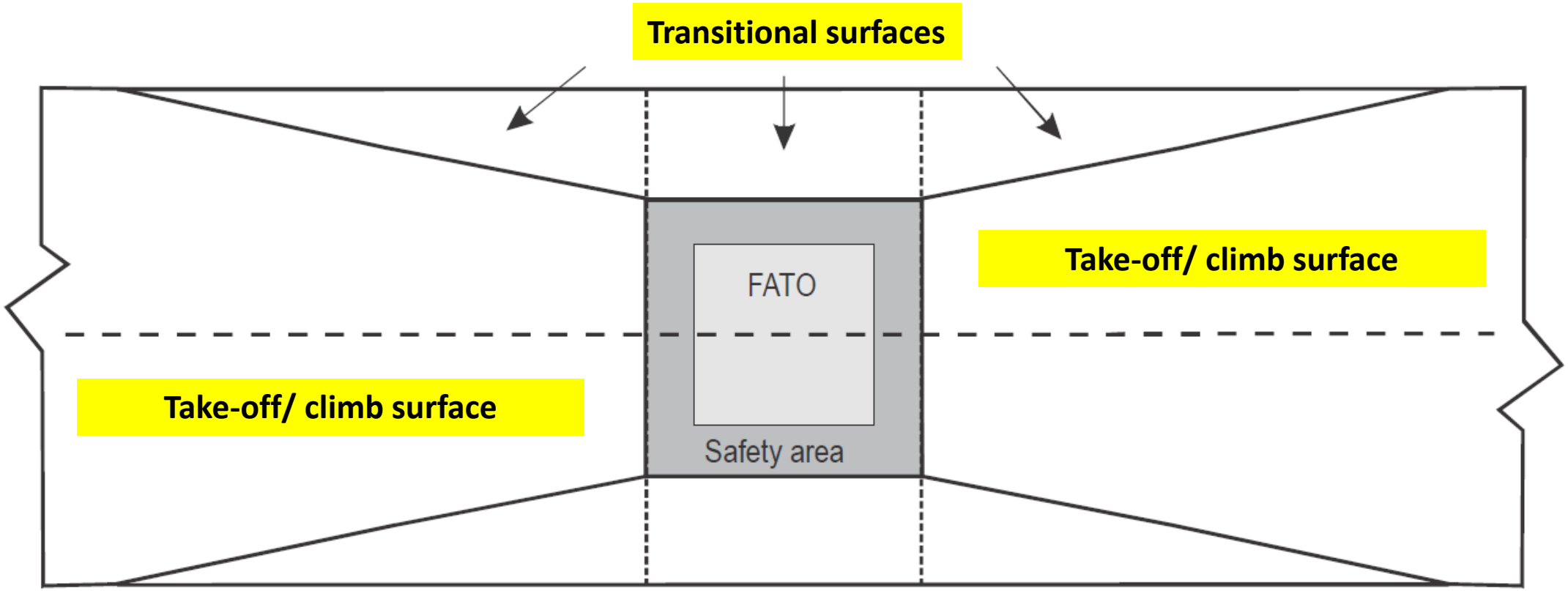
Turning Stands (With Air Taxi -Routes) Non-simultaneous Use — Outer Stands Active



CHAPTER 4:

OBSTACLE ENVIRONMENT FOR SURFACE LEVEL AND ELEVATED HELIPORTS

Obstacle Environment for Heliport



Note 1.— For single take-off/climb approach surface. Transition surface extends to far side of safety area.

Note 2.— PANS-OPS, Doc 8168, Volume II, Part IV, details procedure design criteria.

Note 3.— This figure shows a square FATO for illustration purposes only. For a circular FATO, the transitional surface lower and upper edges would also be circular.

Dimensions of OLS

- Slope A
  - Corresponds with helicopter Class 1
- Slope B
  - Corresponds with helicopter Class 3
- Slope C
  - Corresponds with helicopter Class 2

Note: Consult with helicopter operator

SURFACE and DIMENSIONS	*SLOPE DESIGN CATEGORIES*		
	A	B	C
APPROACH and TAKE-OFF CLIMB SURFACE:			
Length of inner edge	Width of safety area	Width of safety area	Width of safety area
Location of inner edge	Safety area boundary (Clearway boundary if provided)	Safety area boundary	Safety area boundary
Divergence: (1st and 2nd section)			
Day use only	10%	10%	10%
Night use	15%	15%	15%
First Section:			
Length	3 386 m	245 m	1 220 m
Slope	4.5% (1:22.2)	8% (1:12.5)	12.5% (1:8)
Outer Width	(b)	N/A	(b)
Second Section:			
Length	N/A	830 m	N/A
Slope	N/A	16% (1:6.25)	N/A
Outer Width	N/A	(b)	N/A
Total Length from inner edge (a)	3 386 m	1 075 m	1 220 m
Transitional Surface: (FATOs with a PinS approach procedure with a VSS)			
Slope	50% (1:2)	50% (1:2)	50% (1:2)
Height	45 m	45 m	45 m

Transitional Surface

- For a FATO at a heliport without a PinS approach incorporating a visual segment surface (VSS) there is no requirement to provide transitional surfaces.

- A complex surface along the side of the safety area and part of the side of the approach/take-off climb surface, that slopes upwards and outwards to a predetermined height of 45 m (150 ft)

Take-Off Climb and Approach Surfaces

- A surface sloping upwards from the end of the safety area and centred on a line passing through the centre of the FATO.
- The limits of a take-off climb surface shall comprise:

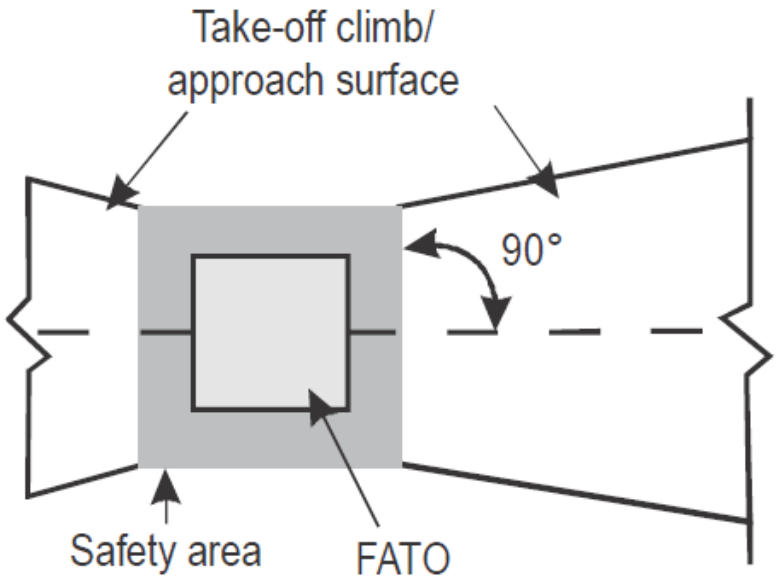
  a. an inner edge horizontal and equal in length to the minimum specified width/diameter of the FATO plus the safety area, perpendicular to the centre line of the take-off climb surface and located at the outer edge of the safety area

  b. two side edges originating at the ends of the inner edge and diverging uniformly at a specified rate from the vertical plane containing the centre line of the FATO

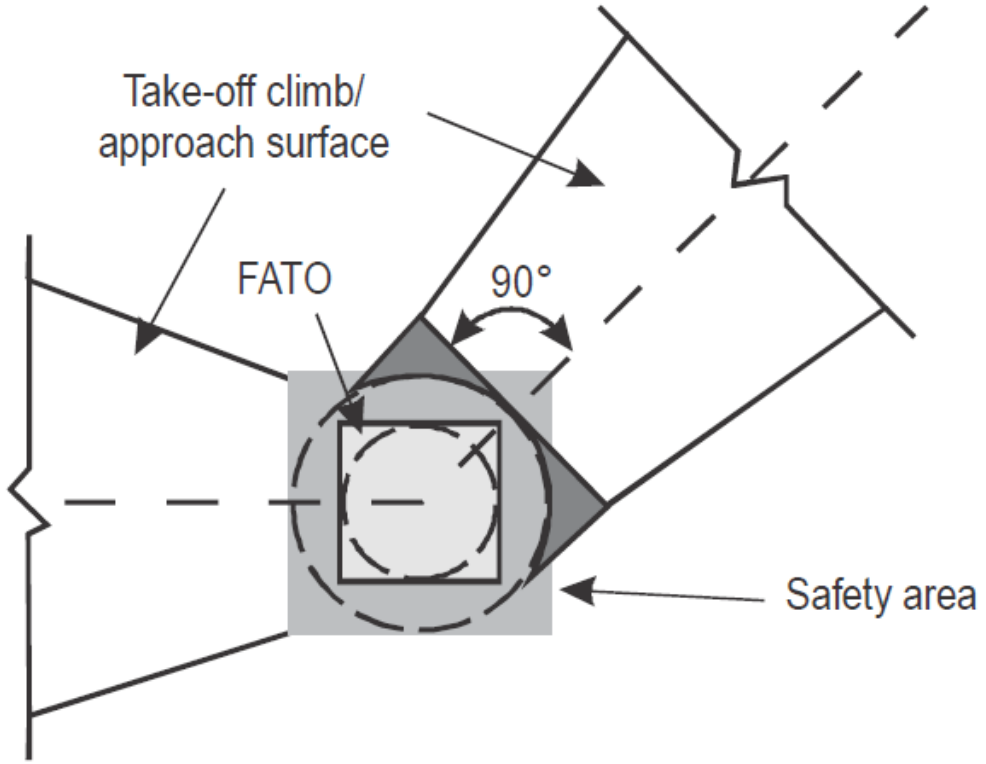
  c. an outer edge horizontal and perpendicular to the centre line of the take-off climb surface and at a specified height of 152 m (500 ft) above the elevation of the FATO.

- The elevation of the inner edge shall be the elevation of the FATO at the point on the inner edge that is intersected by the centre line of the take-off climb surface.
- For heliports intended to be used by helicopters operated in performance class 2 or 3, it is good practice for the departure paths to be selected so as to permit safe forced landings or one-engine-inoperative landings such that, as a minimum requirement, injury to persons on the ground or water or damage to property are minimized.

Take-Off Climb and Approach Surface



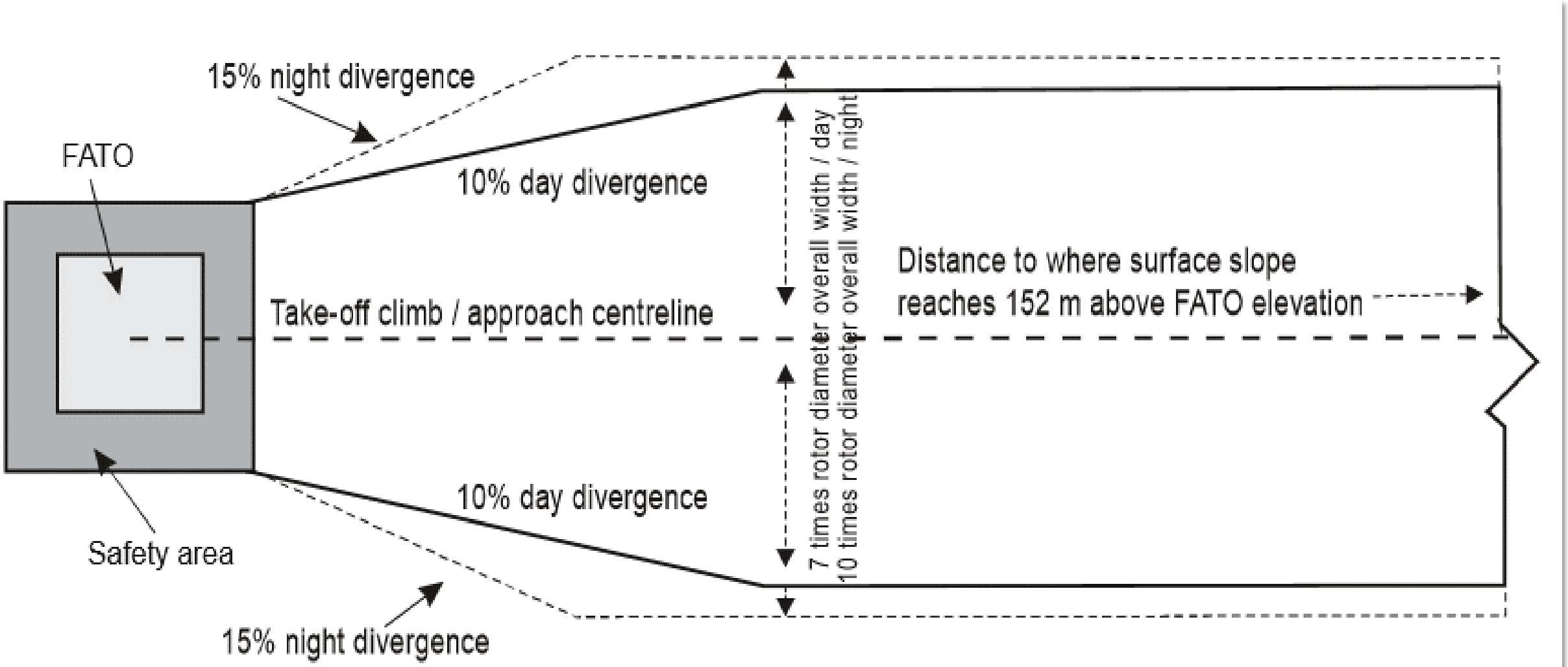
Note 1.— Dark grey shaded area requires the same characteristics as the safety area



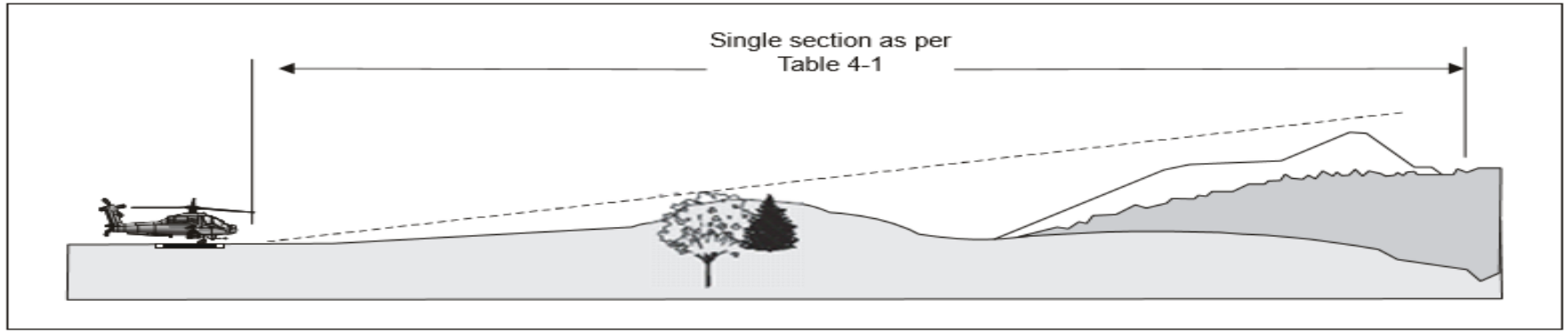
Note 2.— Angle between take-off climb/approach surfaces from centreline to centreline depicted for illustration purposes only

Note 3.— Offset take-off climb/approach surface rotated around centre point of FATO

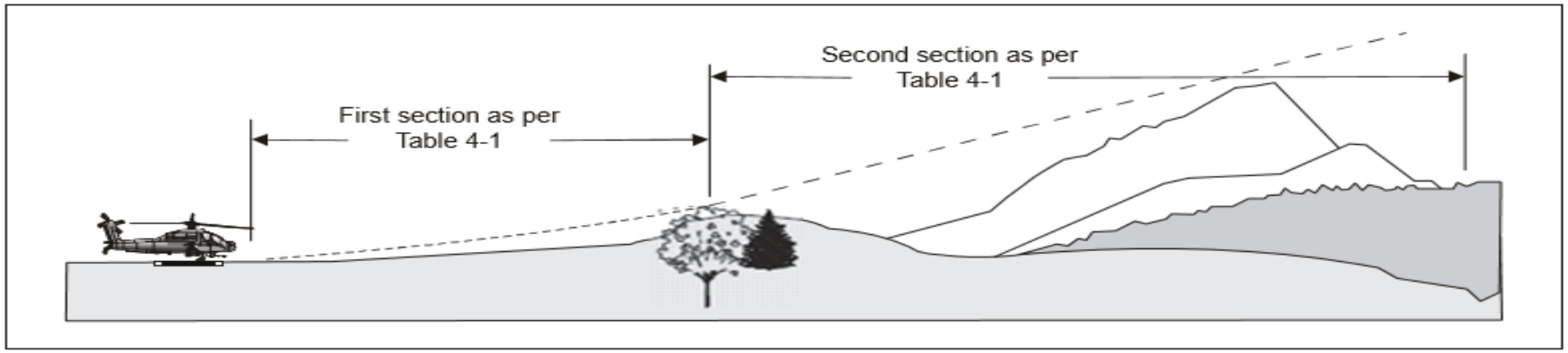
Take-Off Climb and Approach Surface



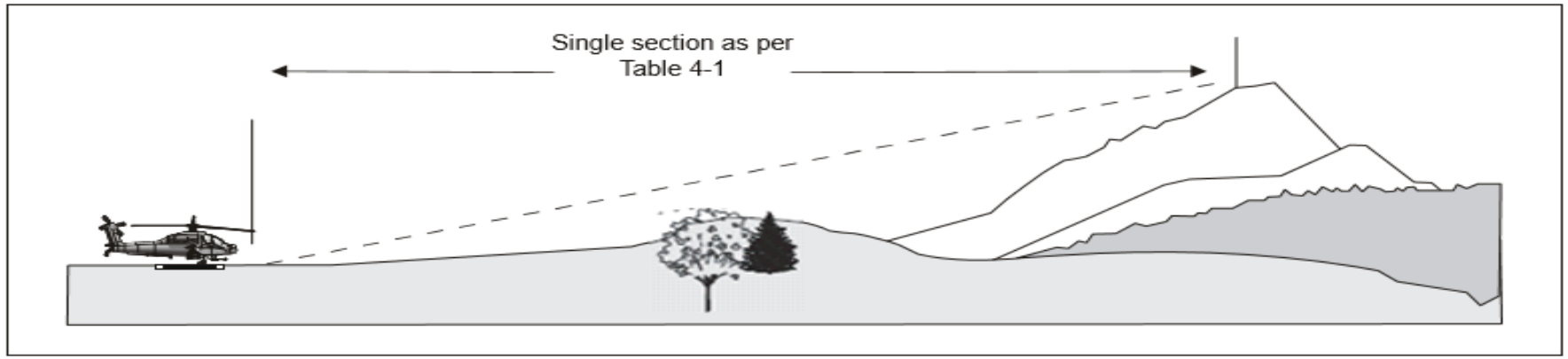
Take-Off Climb and Approach Surface



a) Approach and take-off climb surfaces - "A" slope profile - 4.5% design

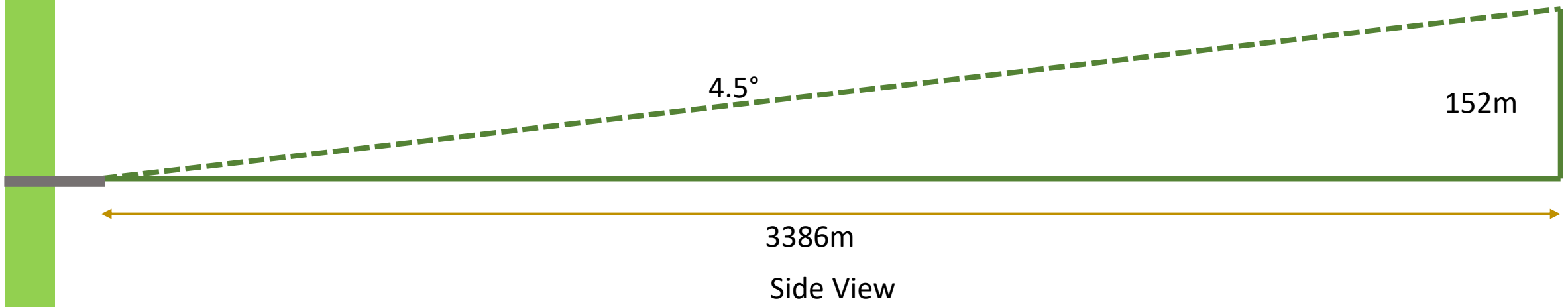


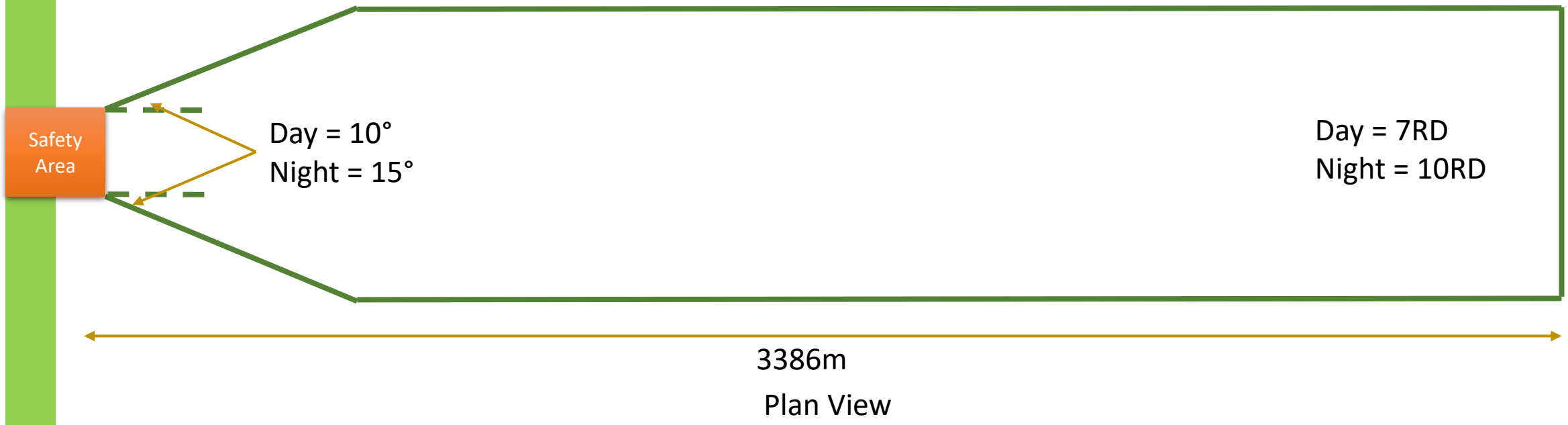
b) Approach and take-off climb surfaces - "B" slope profile - 8% and 16% design



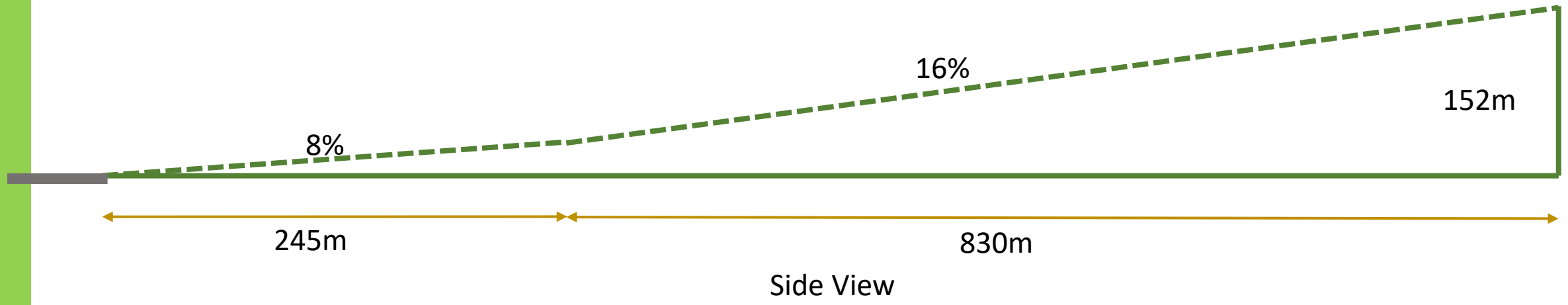
c) Approach and take-off climb surfaces - "C" slope profile - 12.5% design

Take-Off Climb and Approach Surface (Cat A)

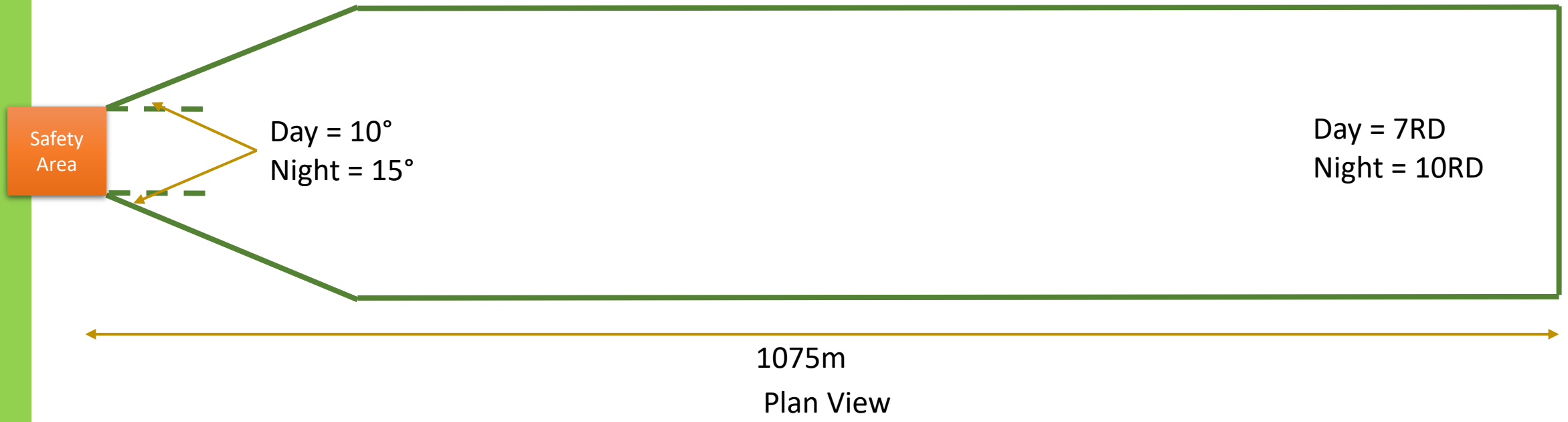




Take-Off Climb and Approach Surface (Cat B)

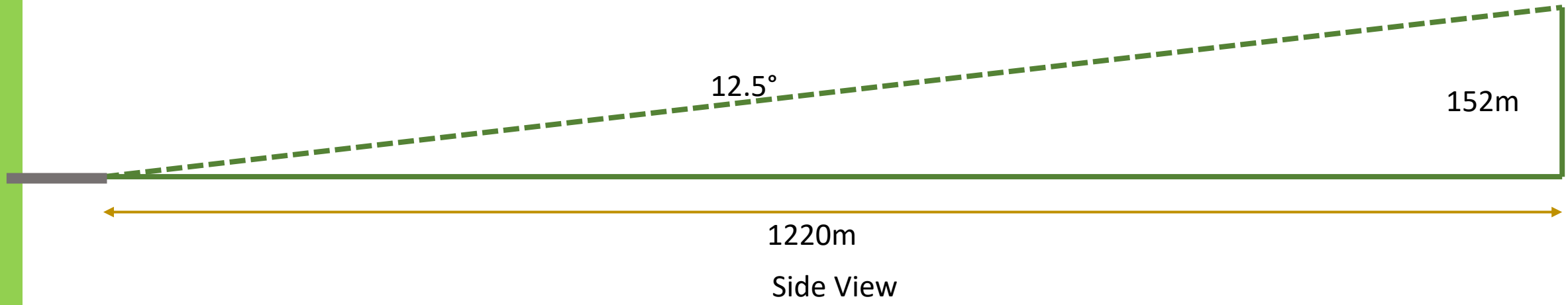


Side View

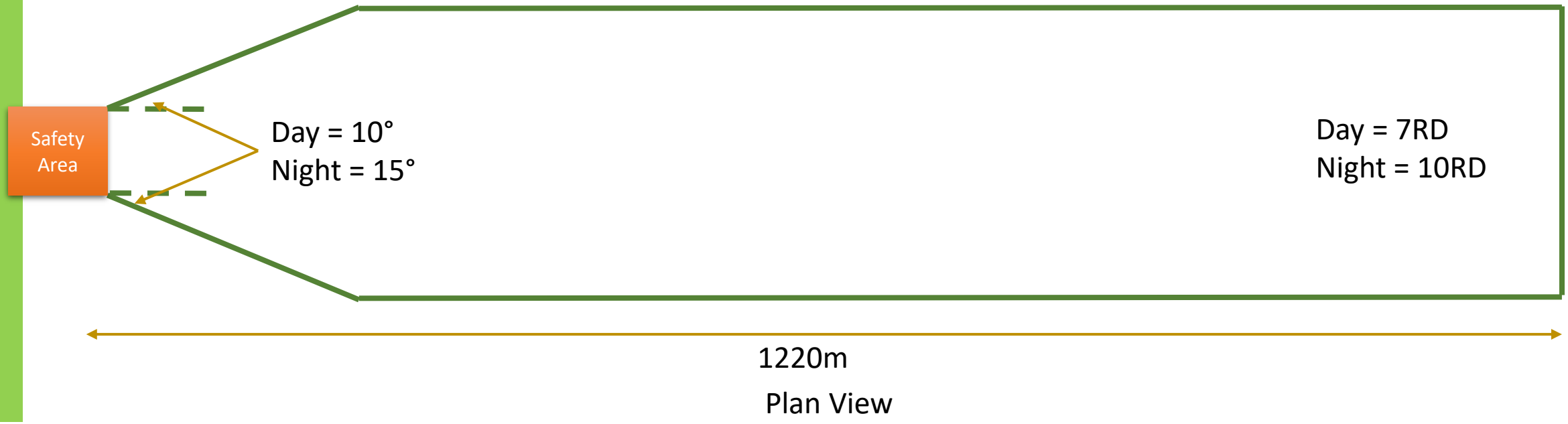


Plan View

Take-Off Climb and Approach Surface (Cat C)



Side View



Plan View

Obstacle Limitation Requirements

- For heliports that have an approach/take-off climb surface with a 4.5 per cent slope design, objects shall be permitted to penetrate the obstacle limitation surface if the results of an aeronautical study approved by an appropriate authority have reviewed the associated risks and mitigation measures.
- New objects or extensions of existing objects shall not be permitted above any of the surfaces except when shielded by an existing immovable object or after an aeronautical study approved by an appropriate authority determines that the object will not adversely affect the safety or significantly affect the regularity of operations of helicopters.
- Existing objects above any of the surfaces, as far as practicable, be removed except when the object is shielded by an existing immovable object or after an aeronautical study approved by an appropriate authority determines that the object will not adversely affect the safety or significantly affect the regularity of operations of helicopters.

Obstacle Limitation Requirements

- A surface-level heliport shall have at least one approach and take-off climb surface.
- An aeronautical study shall be undertaken by an appropriate authority when only a single approach and take-off climb surface is provided considering as a minimum, the following factors:

  a. the area/terrain over which the flight is being conducted

  b. the obstacle environment surrounding the heliport and the availability of at least one protected side slope

  c. the performance and operating limitations of helicopters intending to use the heliport

  d. the local meteorological conditions including the prevailing winds.

- A surface-level heliport should have at least two approach and take-off climb surfaces to avoid downwind conditions, minimize crosswind conditions and permit for a balked landing.

CHAPTER 5:

VISUAL AIDS

Wind Direction Indicator

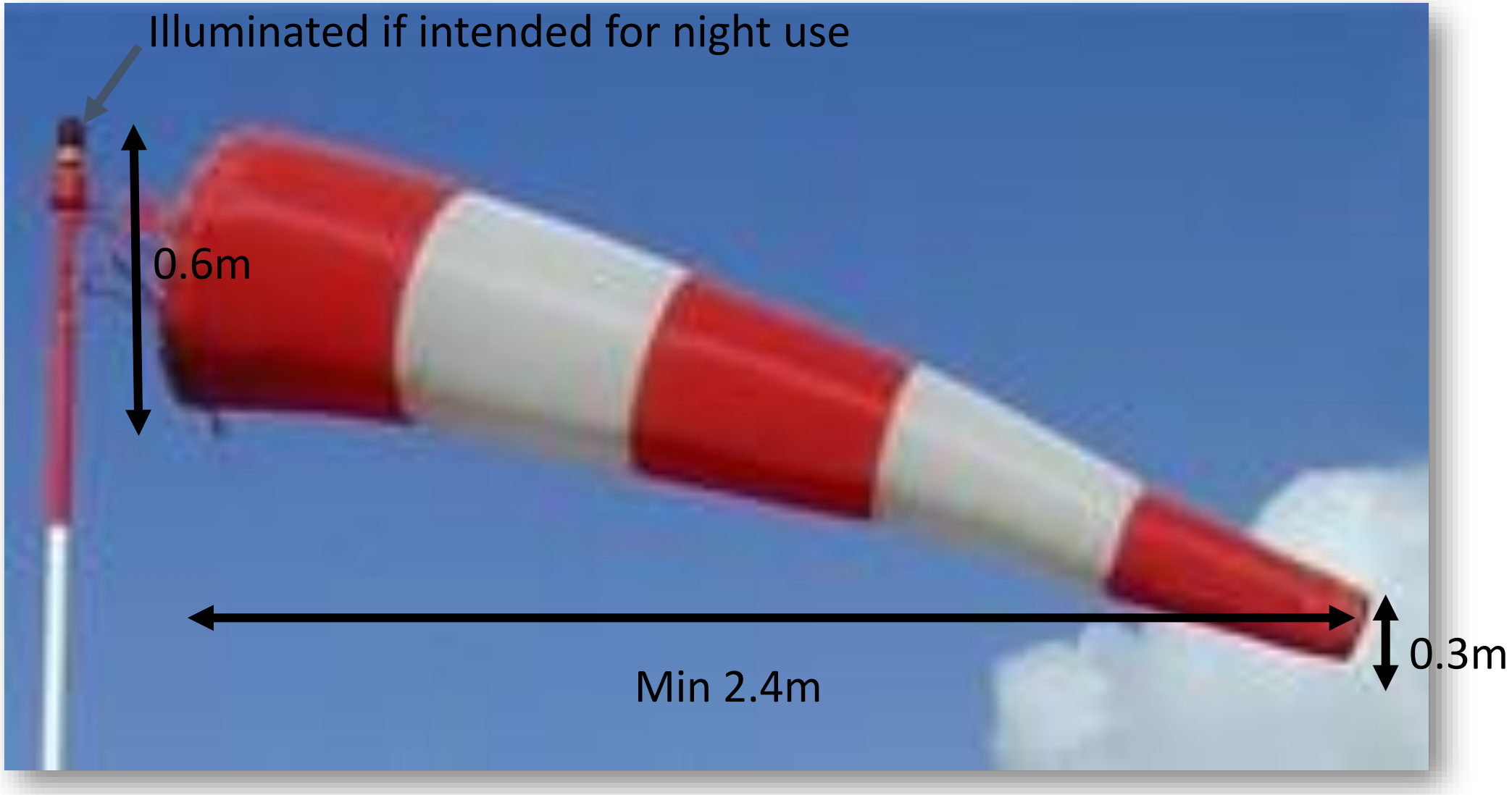
- A heliport SHALL be equipped with one wind direction indicator.
- Wind direction indicator shall be located so as to indicate the wind conditions over the FATO and TLOF and in such a way as to be free from the effects of airflow disturbances caused by nearby objects or rotor downwash.
- It shall be visible from a helicopter in flight, in a hover or on the movement area.
- A wind direction indicator should be a truncated cone made of lightweight fabric

	Surface-level Heliports	Elevated heliports and helidecks
Length	*2.4 m*	*1.2 m*
Diameter (larger end)	*0.6 m*	*0.3 m*
Diameter (smaller end)	*0.3 m*	*0.15 m*

Wind Direction Indicator

- The colour of the wind direction indicator should be so selected as to make it clearly visible and understandable from a height of at least 200 m (650 ft) above the heliport, having regard to background.
- Where practicable, a single colour, white or orange, should be used.
- Where a combination of two colours is required to give adequate conspicuity against changing backgrounds, orange and white, red and white, or black and white, and should be arranged in five alternate bands the first and last band being the darker colour.
- A wind direction indicator at a heliport intended for use at night shall be illuminated.

Wind Direction Indicator



Markings

- **Mandatory Markings**

  a. Heliport identification marking

  b. FATO area marking

  c. TLOF area marking

  d. Maximum allowable mass marking

  e. Touchdown/ Positioning

- **Other Important Markings**

  a. Aiming point marking

  b. Heliport name marking

  c. D-Value Marking

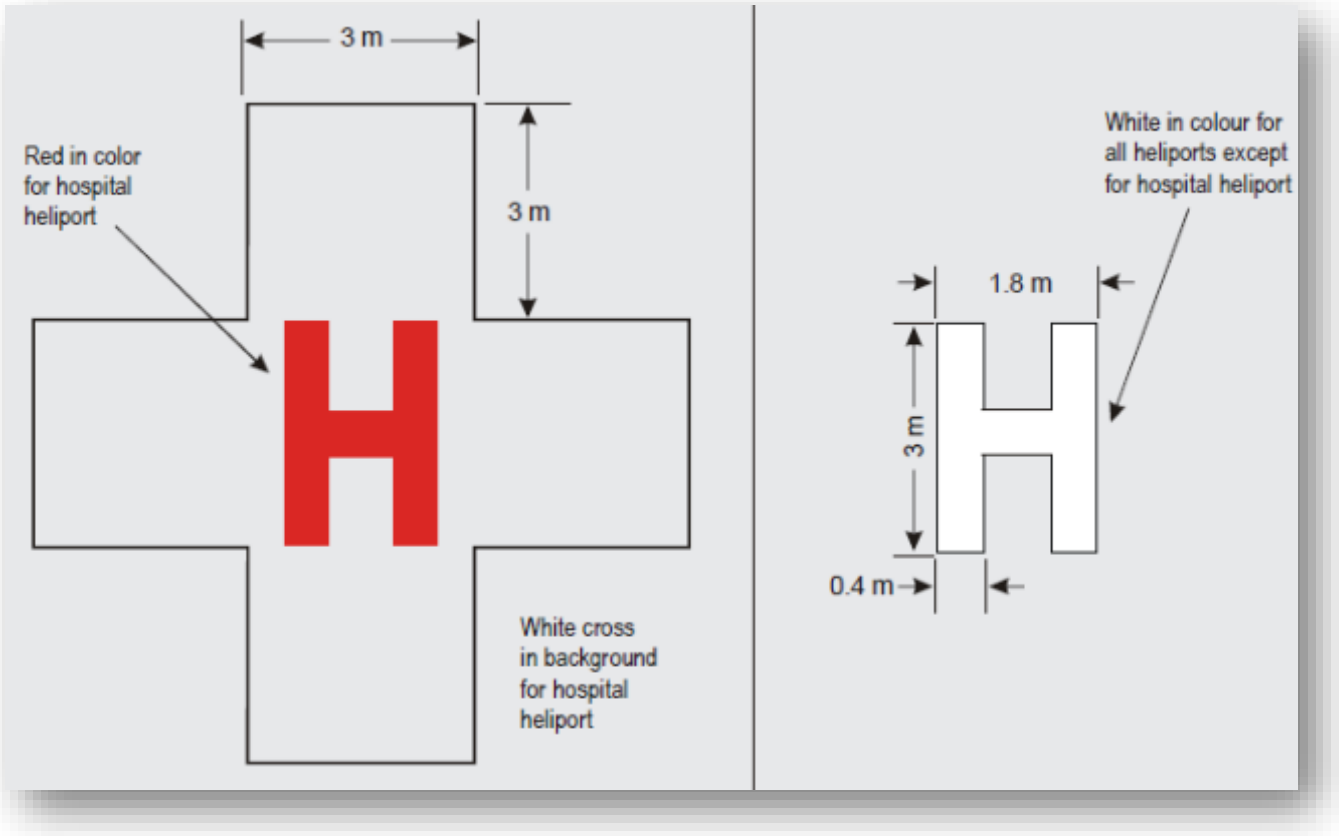
Heliport Identification Marking

- A heliport identification marking shall be located at or near the centre of the FATO.
- The objective of heliport identification marking is to provide to the pilot an indication of the presence of a heliport and, by its form, the likely usage; the preferred direction(s) of approach
- On a FATO which contains a TLOF, a heliport identification marking shall be located in the FATO so the position of it coincides with the centre of the TLOF

Heliport Identification Marking

WHITE coloured letter “H” except at hospital area

- RED coloured letter “H” with a white cross at hospital area
- Oriented so that the crossarm of the “H” is at right angles to the preferred final approach direction.

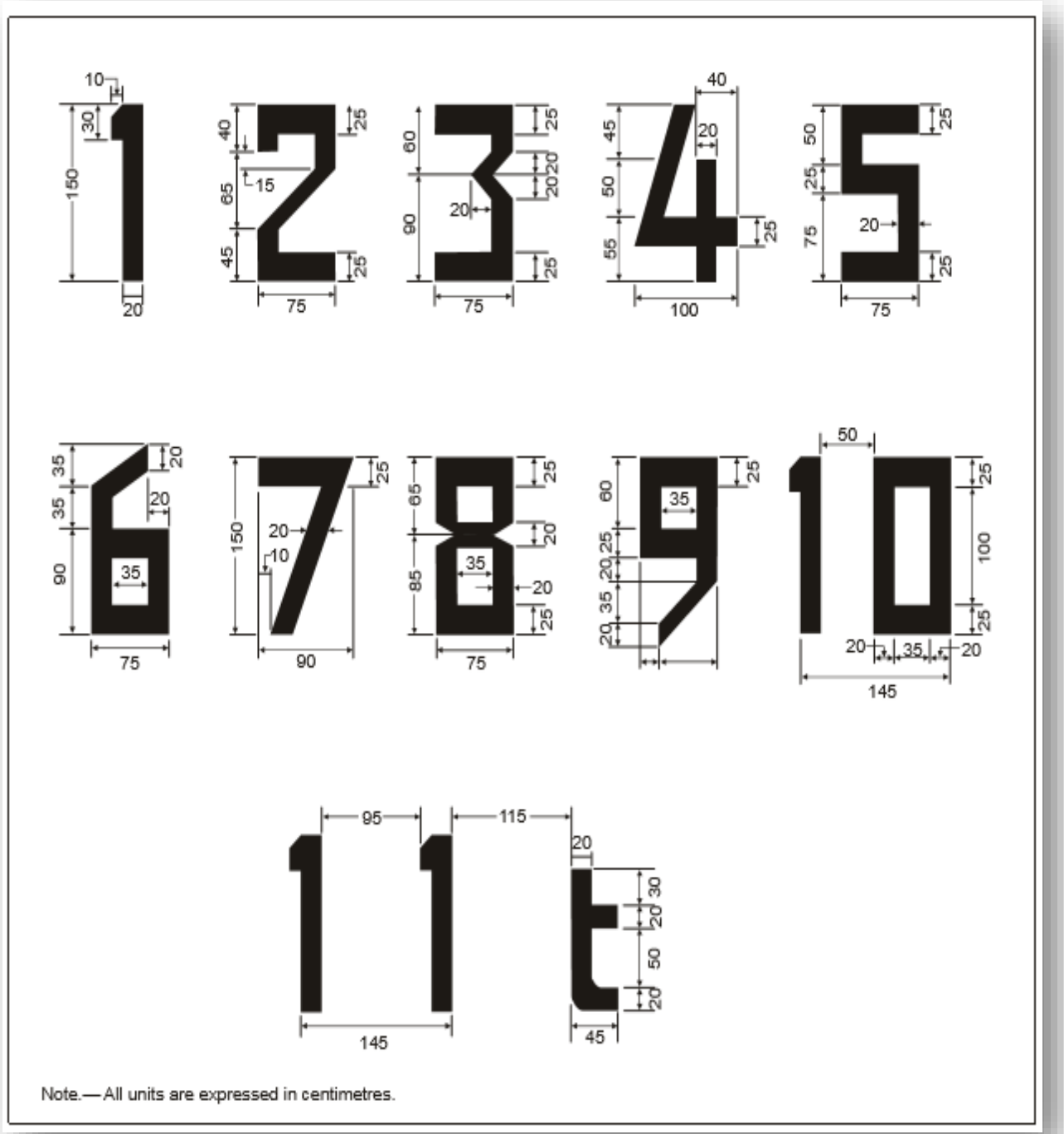


Maximum Allowable Mass Marking

- The objective of the maximum allowable mass marking is to provide the mass limitation of the heliport such that it is visible to the pilot from the preferred final approach direction.
- Located within the TLOF or FATO and so arranged as to be readable from the preferred final approach direction.
- Consist of a one-, two- or three-digit number.
- Expressed to the nearest 100 kg. The marking should be presented to one decimal place and rounded to the nearest 100 kg followed by the letter “t”.
- Decimal point to be marked with 30cm square.
- Shall be WHITE

Form and Proportions of Numbers and Letters

- FATO > 30m : Follow figure 5.4
- FATO 15m – 30m : minimum 90cm height
- FATO < 15m : minimum 60cm height
- Width and thickness reduce proportionally.



FATO Perimeter Marking for Surface Level Heliports

- The objective of FATO perimeter marking is to provide to the pilot, where the perimeter of the FATO is not self-evident, an indication of the area that is free of obstacles and in which intended procedures or permitted manoeuvring may take place

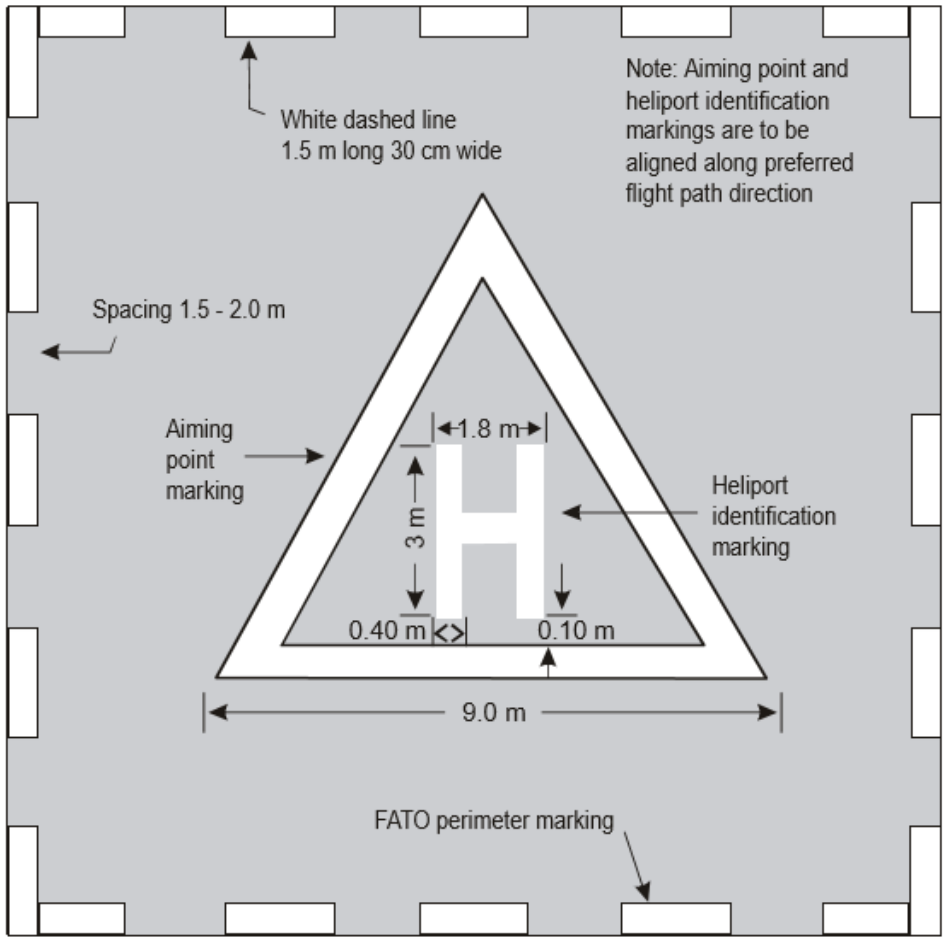
- Shall be provided at a surface-level heliport where the extent of a FATO with a solid surface is not self-evident.

- The FATO perimeter marking or markers shall be located on the edge of the FATO.

- The corners of a square or rectangular FATO shall be defined.

FATO Perimeter Markings

- Square area – The FATO perimeter marking segments shall be 30 cm in width, 1.5 m in length, and with end-to-end spacing of not less than 1.5 m and not more than 2 m. The corners of the square or rectangular FATO shall be defined.
- Circular area – at equal intervals of not more than 10m with a minimum number of five markings
- A FATO area marking and markers shall be **WHITE**



Note: *The aiming point, heliport identification and FATO perimeter markings are white and may be edged with a 10 cm black border to improve contrast*

TLOF Perimeter Marking

- The objective of TLOF perimeter marking is to provide to the pilot an indication of an area that is free of obstacles; has dynamic load bearing; and in which, when positioned in accordance with the TDPM, undercarriage containment is assured.
- Located along the perimeter of the TLOF area
- Continuous WHITE line with a width of at least 30cm
- Where FATO coincides with TLOF, TLOF marking to prevail.

Touchdown / Positioning Marking

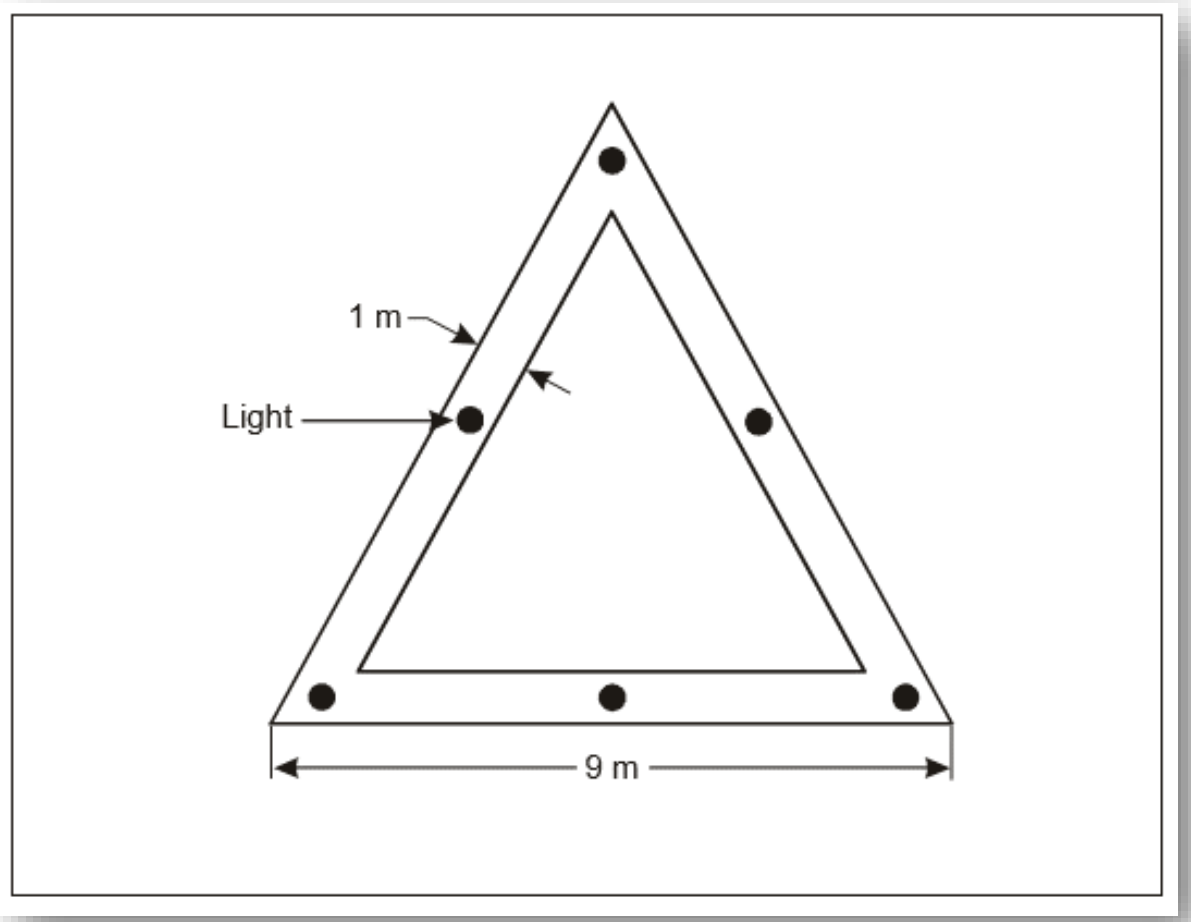
- The objective of touchdown/positioning marking (TDPM) is to provide visual cues which permit a helicopter to be placed in a specific position such that, when the pilot's seat is above the marking, the undercarriage is within the load -bearing area and all parts of the helicopter will be clear of any obstacles by a safe margin.
- Located so that when a helicopter for which the marking is intended is positioned, with the main undercarriage inside the marking and the pilot situated over the marking, all parts of the helicopter will be clear of any obstacle by a safe margin.
- YELLOW circle and have a line width of at least 0.5m. Inner diameter shall be 0.5D of the largest helicopter

Heliport Name Marking

- Shall be provided at a heliport where visual identification of the heliport is necessary
- Placed so as to be visible, as far as practical, at all angles above the horizontal.
- Consists of the name or alphanumeric designator of the heliport as used in R/T communication
- The characters of the marking should be not less than 1.5 m in height at surface-level heliports and not less than 1.2 m on elevated heliports, helidecks and shipboard heliports.
- The colour of the marking should contrast with the background and preferably be WHITE
- Illuminated if used at night

Aiming Point Markings

- Shall be provided where it is necessary for a pilot to make an approach to a particular point before proceeding to the TLOF area
- Equilateral triangle with the bisector of one of the angles aligned with the preferred approach direction.
- Located within the FATO area
- Continuous white line. Width 1m



D-Value Marking

- The objective of D-value marking is to provide to the pilot the “D” of the largest helicopter that can be accommodated on the heliport.
- Shall be displayed at a helideck and at a shipboard heliport
- Located within the TLOF or FATO and so arranged as to be readable from the preferred final approach direction
- Where there is more than one approach direction, additional D-value markings should be provided such that at least one D-value marking is readable from the final approach direction.
- Shall be WHITE
- Form and proportions as per Max Allowable Mass Marking

Helicopter Taxiway Marking

- The objective of helicopter taxiway markings and markers is, without being a hazard to the helicopter, to provide to the pilot by day and, if necessary, by night, visual cues to guide movement along the taxiway
- Ground taxi-routes and air taxi-routes over a taxiway are not required to be marked.
- Unless otherwise indicated, it may be assumed that a helicopter taxiway is suitable for both ground taxiing and air taxiing of helicopters.
- Centreline - YELLOW with width at least 15cm and continuous in length
- Edge – Continuous double YELLOW lines each 15cm in width and spaced 15 cm apart (nearest edge to nearest edge)

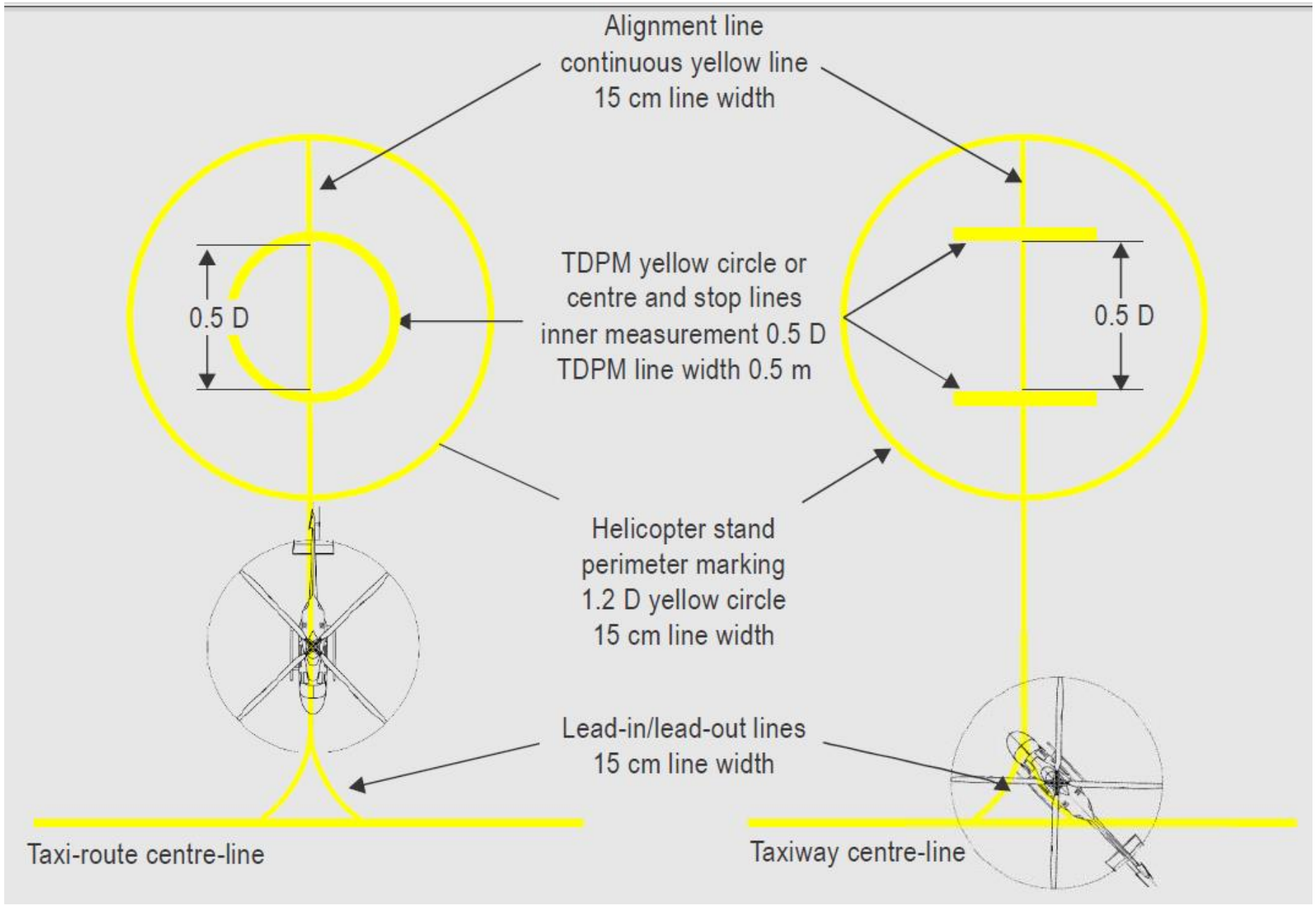
Helicopter Stand Markings

- *The objective of helicopter stand markings is to provide to the pilot a visual indication of: an area that is free of*
- *obstacles and in which permitted manoeuvring, and all necessary ground functions, may take place; identification, mass and*
- *D-value limitations, when required; and guidance for manoeuvring and positioning of the helicopter within the stand.*
- A helicopter stand perimeter marking shall be provided.
- A helicopter stand shall be provided with the appropriate TDPM
- *Alignment lines and lead-in/lead-out lines should be provided on a helicopter stand.*
- *Helicopter stand identification markings may be provided where there is a need to identify individual stands.*

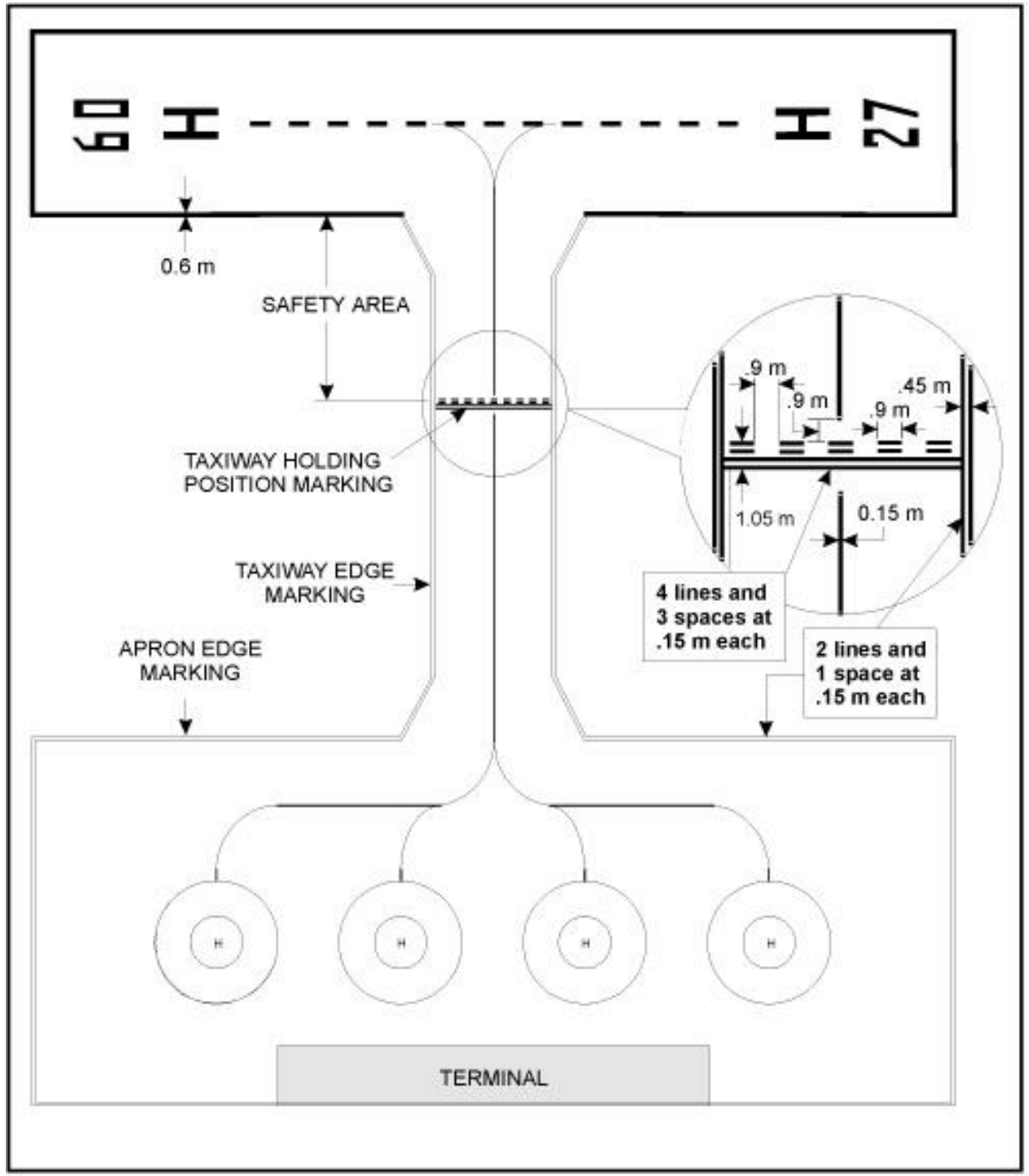
Helicopter Stand Markings

- A helicopter stand perimeter marking and lead-in/lead-out lines shall be a yellow circle and have a line width of 15 cm.
- For a helicopter stand intended to be used for taxi-through and which does not allow the helicopter to turn, a yellow stop line shall not be less than the width of the helicopter ground taxiway and have a line thickness of 50 cm
- Where it is intended that helicopters proceed in one direction only, arrows indicating the direction to be followed may be added as part of the alignment lines.

Helicopter Stand Markings



Helicopter Apron and Taxiway Marking



Lights

- The following lights shall be provided at heliport intended for use by night or in restricted visibility condition by day or night
  - Heliport beacon
  - FATO area lights
  - TLOF area lights
  - Obstacle Lights
- Aiming points lights shall be provided where an aiming point is established
- Taxiway lights shall be provided where helicopter ground taxiway is established.

Heliport Beacon

- Shall be provided where:
  a. long-range visual guidance is considered necessary and is not provided by other visual means; or
  b. identification of the heliport is difficult due to surrounding lights.
- The heliport beacon shall be located on or adjacent to the heliport preferably at an elevated position and so that it does not dazzle a pilot at short range.
- The heliport beacon shall emit repeated series of equispaced short duration white flashes.
- The light from the beacon shall show at all angles of azimuth.

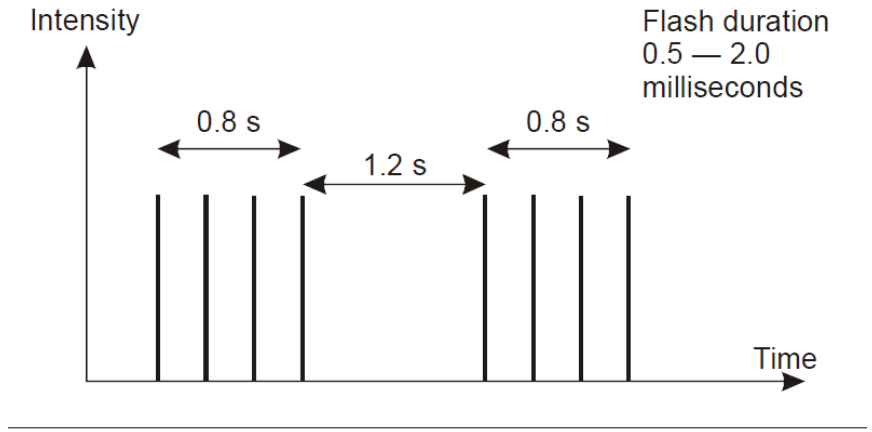


Figure 5-11. Heliport beacon flash characteristics

FATO Lighting Systems for Onshore Surface Level Heliports

- The objective of a FATO lighting system for onshore surface-level heliports is to provide to the pilot operating at night an indication of the shape, location and extent of the FATO
- FATO area lights shall be provided except that they may be omitted where the FATO area and the TLOF area are coincidental.
- FATO lights shall be placed along the edges of the FATO. The lights shall be uniformly spaced as follows:

  a. Square or rectangle, at intervals of not more than 50 m with a minimum of four lights on each side including a light at each corner; and

  b. Circular area, at intervals of not more than 5 m with a minimum of ten lights.

- Omni directional WHITE light
- The lights should not exceed a height of 25 cm and should be inset when a light extending above the surface would endanger helicopter operations. Where a FATO is not meant for lift-off or touchdown

TLOF Lighting Systems

- The objective of a TLOF lighting system is to provide illumination of the TLOF and required elements within.
- A TLOF lighting system shall be provided at a heliport intended for use at night either perimeter lighting OR floodlighting.
- For Square TLOF:
  a. Elevated heliports - TLOF perimeter lights shall be uniformly spaced at intervals of not more than 3 m
  b. Surface Level Heliports - TLOF perimeter lights shall be uniformly spaced at intervals of not more than 5m . There shall be a minimum number of four lights on each side including a light at each corner.
- For a circular TLOF there shall be a minimum of fourteen lights spaced evenly at the perimeter of the TLOF.
- Omni directional GREEN light
- For a surface-level or elevated heliport, the TLOF perimeter lights located in a FATO shall not exceed a height of 5 cm and shall be inset when a light extending above the surface could endanger helicopter operations.

Obstacle Lights

- At a heliport intended for use at night, obstacles shall be floodlighted if it is not possible to display obstacle lights on them
- Characteristics of obstacle Lights as outlined in ASD 402 are equally applicable to heliports
- Obstacle floodlighting should be such as to produce a luminance of at least 10 cd/m2

Taxiway Lights

- To follow recommendations in Annex 14 Volume 1

Aiming Point Lights

- When an aiming point marking is provided at a heliport intended for use at night, aiming point light should be provided
- Omnidirectional WHITE light

CHAPTER 6:

HELIPORT EMERGENCY RESPONSE

Heliport Emergency Plan

- Heliport emergency planning is the process of preparing a heliport to cope with an emergency that takes place at the heliport or in its vicinity.
- Examples of emergencies include crashes on or off the heliport, medical emergencies, dangerous goods occurrences, fires and natural disasters.
- The purpose of heliport emergency planning is to minimize the impact of an emergency by saving lives and maintaining helicopter operations.
- The heliport emergency plan sets out the procedures for coordinating the response of heliport agencies or services (air traffic services unit, firefighting services, heliport administration, medical and ambulance services, aircraft operators, security services and police) and the response of agencies in the surrounding community (fire departments, police, medical and ambulance services, hospitals, military, and harbour patrol or coast guard) that could be of assistance in responding to the emergency

Heliport Emergency Plan

- The plan should include, as a minimum, the following information:
  a. types of emergencies planned for
  b. how to initiate the plan for each emergency specified;
  c. name of agencies on and off the heliport to contact for each type of emergency with telephone numbers or other contact information;
  d. role of each agency for each type of emergency;
  e. a list of pertinent on-heliport services available with telephone numbers or other contact information;
  f. copies of any written agreements with other agencies for mutual aid and the provision of emergency services
  g. a grid map of the heliport and its immediate vicinity.
- A test of the emergency plan should be carried out at least once every three years.

Rescue & Firefighting - Level of Protection

- Level of protection shall be based on overall length of the longest helicopter NORMALLY using the heliport.
- During anticipated periods of operations by smaller helicopters, the heliport fire fighting category may be reduced to that of the highest category of helicopter planned to use the heliport during that time
- In the case of a heliport located on an aerodrome, it may be assumed that the rescue and fire fighting services and equipment provided for aeroplanes will be at least equal to those required for the longest helicopter normally using the facility and that the response time to the helicopter does not exceed two minutes.

Level of Protection

Table 6-1. Heliport firefighting category

Category (1)	*Maximum fuselage length (2)*	*Maximum fuselage width (3)*
H0	up to but not including 8 m	1.5
H1	from 8 m up to but not including 12 m	2
H2	from 12 m up to but not including 16 m	2.5
H3	from 16 m up to 20 m	3

Rescue & Firefighting - Level of Protection

Table 6-1. Heliport firefighting category

Category (1)	*Maximum fuselage length (2)*	*Maximum fuselage width (3)*
H0	up to but not including 8 m	1.5
H1	from 8 m up to but not including 12 m	2
H2	from 12 m up to but not including 16 m	2.5
H3	from 16 m up to 20 m	3

A discretionary 10 per cent tolerance on fuselage dimension “upper limits” can be applied

Determine the Level of Protection

Helicopter	Max fuselage length, m	Max fuselage width, m	Level of Protection
EC 725			
AW 139			
Mil-17-1A2			

Rescue & Firefighting – Surface Level Heliports

Table 6-2. Minimum usable amounts of extinguishing agents for surface-level heliports

	Foam meeting performance level B		*Foam meeting performance level C*		*Complementary agents*	
Category (1)	*Water (L) (2)*	*Discharge rate foam solution/minute (L) (3)*	*Water (L) (4)*	*Discharge rate foam solution/minute (L) (5)*	*Dry chemical powder (kg) (6)*	*Gaseous media (kg) (7)*
H0	500	250	330	165	23	9
H1	800	400	540	270	23	9
H2	1 200	600	800	400	45	18
H3	1 600	800	1 100	550	90	36

- Performance Level B – Foam applied at a rate of 5.5 L/min/m2
- Performance Level C – Foam applied at a rate of 3.75 L/min/m2
- Primary media applied as a solid stream using portable foam application system (PFAS)

Rescue & Firefighting – Elevated Heliports

Table 6-3. Minimum usable amounts of extinguishing agents for elevated heliports

	Foam meeting performance level B		*Foam meeting performance level C*		*Complementary agents*	
Category (1)	*Water (L) (2)*	*Discharge rate foam solution/minute (L) (3)*	*Water (L) (4)*	*Discharge rate foam solution/minute (L) (5)*	*Dry chemical powder (kg) (6)*	*Gaseous media (kg) (7)*
H0	1 250	250	825	165	23	9
H1	2 000	400	1 350	270	23	9
H2	3 000	600	2 000	400	45	18
H3	4 000	800	2 750	550	90	36

- Performance Level B – Foam applied at a rate of 5.5 L/min/m2
- Performance Level C – Foam applied at a rate of 3.75 L/min/m2
- Primary media applied as a solid stream using fixed foam application system (FFAS)

Rescue & Firefighting – Response Equipment

Equipment	Heliport HF category	
	H1 and H2	H3
Adjustable wrench	1	1
Axe, rescue, non-wedge or aircraft type	1	1
Cutters, bolt, 60 cm	1	1
Crowbar, 105 cm	1	1
Hook, grab or slaving	1	1
Hacksaw, heavy duty complete with 6 spare blades	1	1
Blanket, fire resistant	1	1
Ladder, length appropriate to Helicopter in use	-	1
Lifeline, 5 cm, 15 m in length	1	1
Pliers, side cutting	1	1
Set of assorted screwdrivers	1	1
Harness knife complete with sheath	1	1
Gloves, fire resistant	2 pairs	3 pairs
Power cutting tool	-	1

Response Time

- Response time is defined as the time between the initial call to the rescue and firefighting service and the time when the first responding vehicle is in position to apply foam at a rate of at least 50% of the allowable discharge rate
- At surface-level heliports, the operational objective of the RFF response should be to achieve response times not exceeding two minutes in optimum conditions of visibility and surface conditions.
- At elevated heliports, limited-sized surface-level heliports and helidecks, the response time for the discharge of primary media at the required application rate should be 15 seconds measured from system activation. If RFF personnel are needed, they should be immediately available on or in the vicinity of the heliport while helicopter movements are taking place.

AERODROME MANUAL

Particulars in Heliport Manual

- General
- Particulars of Heliport Site
- Particulars of Heliport
  - Heliport Dimensions
  - Geographical Coordinates
  - Declared Distances
  - Visual Aids
  - Rescue and Fire Fighting
- Heliport Administration
- Heliport Operation Procedures
  - ATC Coordination Procedures
  - Reporting Procedures
  - Access to Heliport Area
  - Emergency Plan
  - Rescue and Fire Fighting
  - Inspection of Heliport
  - Visual Aids and Electrical Systems
  - Maintenance of Heliport
  - Safety Management
  - Obstacle Control
  - Removal of Disabled Aircraft
  - Handling Hazardous Materials
  - Protection of Navaids

QUESTIONS?