TECHNICAL GUIDANCE MATERIAL
for
Design Requirements for Helistops

SUBJECT: **DESIGN REQUIREMENTS FOR HELISTOPS.**

EFFECTIVE DATE: **26 August 2025**

APPLICABILITY

This technical guidance material is applicable to applicants that wish to apply for the Approval of a Helistop as stipulated in the South African Civil Aviation Regulations Part 139.

PURPOSE

To provide technical guidance that is acceptable to the South African Civil Aviation Authority in demonstrating compliance with the design of helistops and to determine the suitability of a proposed site for the landing and taking-off of helicopters for approval.

1.REFERENCES AND REQUIREMENTS

i. South African Civil Aviation Regulations Part 139.04.2

2.ABBREVIATIONS & DEFINITIONS:

ABBREVIATIONS	DEFINITION
D	Overall length of design helicopter
FATO	Final approach and take off
RD	Rotor diameter of design helicopter
SACAA	South African Civil Aviation Authority
TLOF	Touchdown and lift off

DEFINITIONS	DESCRIPTION
Elevated Helistop	A helistop located on a raised structure on land.
Final approach and take off	A defined area over which the pilot completes the final phase of the approach

area	to a hover or a landing and from which the pilot initiates take-off
Helistop	A minimally developed heliport located either at ground level or elevated on a structure used for landing and take-off of helicopters but without auxiliary facilities such as helicopter parking area, fuelling, terminal building, aircraft maintenance organisations and hangars.
Hospital Helistop	A helistop limited to serving helicopters engaged in air ambulance, or other hospital related functions.
Overall helicopter length	The maximum length of a helicopter including rotors, measured through the fore and aft centre line of the helicopter.
Surface level Helistop	A helistop located at ground level.
Touchdown and lift off area	A load bearing, generally paved area, normally centred in the FATO, on which the helicopter lands and/or takes off.

3. RESTRICTIONS

3.1. Helistops intended for restricted use, shall be categorised as follows:

a) a restriction on mass only; or
b) a restriction on rotor diameter only, or
c) a restriction on mass and rotor diameter; or
d) VFR daylight operations only; or
e) VFR day and night operations only; or
f) a restriction during certain hours in a day; or
g) for private use only; or
h) for emergency use only; or
i) for commercial use.

4. PHYSICAL CHARACTERISTICS FOR HELISTOPS

4.1. Helistop site selection.

4.1.1. The SACAA will approve a **Helistop** to come into existence provided the following requirements can be met:

a) The minimum requirements prescribed for that type of Helistop can be met.
b) The Local Authority of the area where within such a Helistop is to be situated has issued a letter of no objection to the establishment of such Helistop.
c) Safe routes to and from the proposed Helistop exist and will remain in existence for as long a period as the facility is intended.

4.1.2. The South African Civil Aviation Authority will regard each request to establish a Helistop considering the feasibility as to:

a) the desired location and physical layout;
b) operational safety such as fire protection;
c) the effect it will have on the surrounding community; and
d) the permanency thereof.

4.2. Selection of approach and departure paths.

4.2.1. Consideration of wind- Approach/ departure paths should preferably be 180 degrees to permit pilots to avoid downwind conditions and minimize crosswind operations.

4.2.2. The preferred flight approach/ departure path should, to the extent feasible, be aligned with the predominant wind direction, however, the presence of buildings or some other obstacles may prevent a 180 degrees approach orientation. Other approach/ departure paths should therefore be based on the assessment of the prevailing winds, when this information is not available the separation between such flight path and the preferred flight path should not be less than 135 degrees as shown in Figure 1.

4.2.3. In determining approach/ departure paths, it should also be necessary to take into account the obstructions in the vicinity of the Helistop and in particular those likely to be a hazard to air navigation.

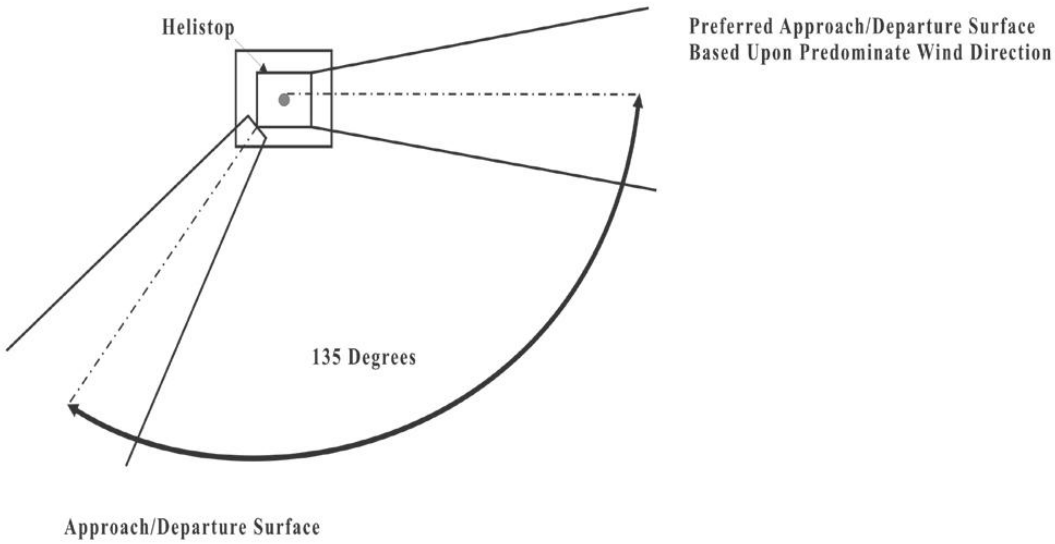

Figure 1: Minimum separation between approach/departure paths

4.3. Slopes for obstacle restriction.

4.3.1. Approach Surfaces: VFR day 1:8 or 12.5 % VFR night 1:15 or 6.7 %

4.3.2. Transitional Slopes: VFR day 1: 2 or 50% VFR night 1:4 or 25%

4.3.3. Divergence: VFR day - 10% VFR night - 15%

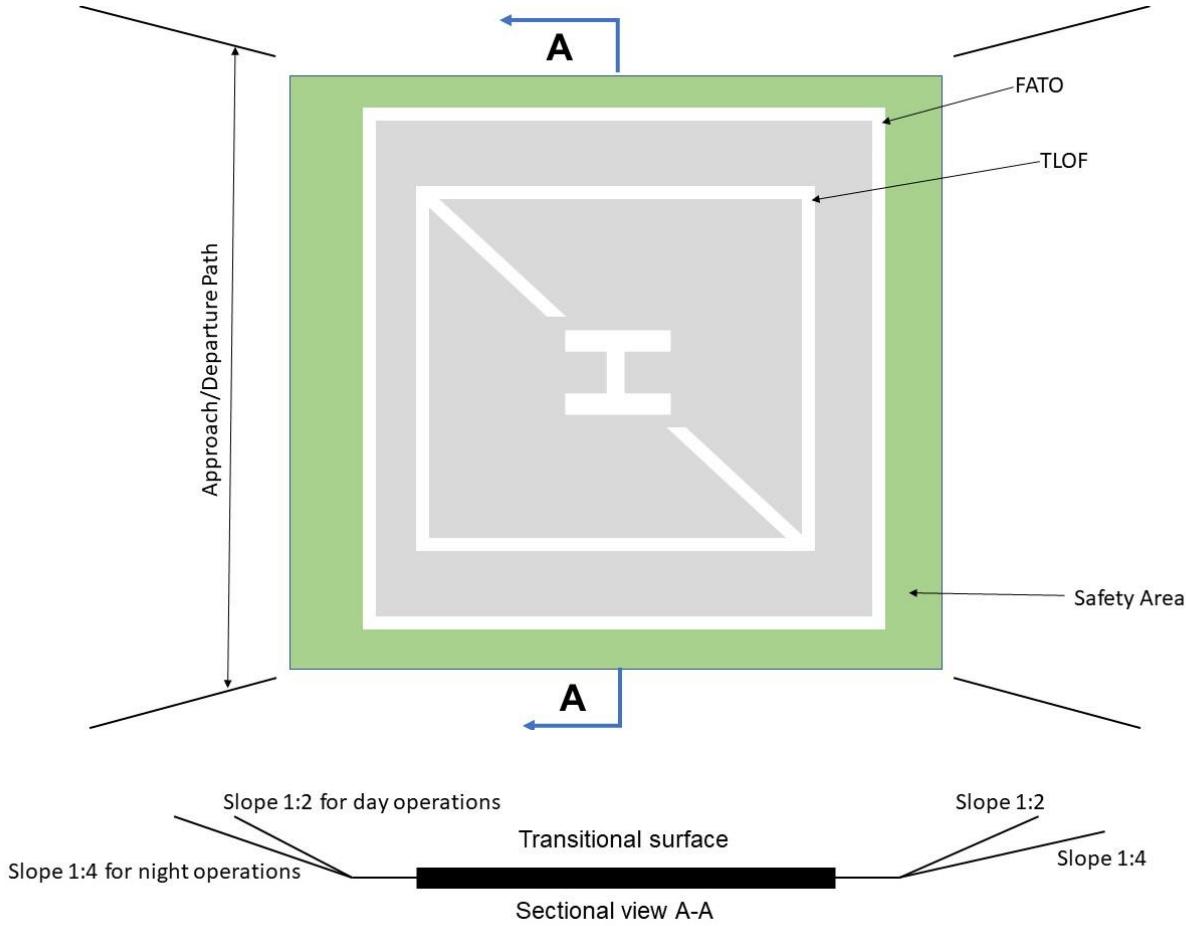

Figure 2. Obstacle restriction for transitional surfaces

4.4. **Helistop location.**

4.4.1. A Helistop can be located either at ground level, elevated on a structure or rooftop.

5. Surface-level helistop

5.1. Touchdown and lift-off area (TLOF)

5.1.1. A surface-level helistop shall be provided with a touchdown and lift off area.

5.1.2. The entire TLOF shall be load bearing, preferably on a paved surface and shall be designed to withstand the dynamic loads of the heaviest helicopter.

5.1.3. Pavements shall have a finish that provides a skid-resistant surface and a non-slippery footing for people.

5.1.4. The minimum TLOF dimensions shall be 15m x 15m for a square or 15m diameter for a circle but not less than 1.0 x the overall length (D) of the largest helicopter if the overall length is greater than 15m.

5.1.5. Slopes on a TLOF area shall be sufficient to prevent accumulation of water on the surface of the area but shall not exceed 2 percent in any direction.

5.2. Final Approach and Take-off Area (FATO)

5.2.1. A surface-level helistop shall be provided with at least one final approach and take-off area.

5.2.2. The minimum dimensions of a FATO shall be 20m x 25m for an area in a form of a rectangle or 20m diameter for a circle but not less than 1.5 x the overall length(D) of the design helicopter.

5.2.3. When the TLOF is marked, the FATO outside the TLOF shall be capable of supporting the static loads of the design helicopter.

5.2.4. When the TLOF is not marked and it is intended that the helicopter can land anywhere within the FATO, the FATO outside the TLOF and any FATO supporting structure shall, like the TLOF, be capable of supporting the dynamic loads of the design helicopter.

5.3. Safety area

5.3.1. The FATO shall be surrounded by a safety area which need not be solid.

5.3.2. The safety area shall be free of all obstacles except for small, frangible objects that, because of their function, must be located there.

5.3.3. Objects whose function requires them to be located within the safety area shall not exceed a height of 25 cm.

5.3.4. The safety area shall extend outwards from the periphery of the FATO for a distance of at least 3m.

6. Elevated helistop

6.1. Touchdown and lift off area (TLOF)

6.1.1. The specifications for a touchdown and lift-off area of an elevated Helistop shall be equally applicable to that of a surface level Helistop.

6.2. Final approach and take-off area (FATO)

6.2.1. The specifications for a final approach and take off area of an elevated Helistop shall be equally applicable to that of a surface level Helistop.

6.3. Safety net

6.3.1. Areas exposed on elevated structures or rooftops shall be secured on all sides with a safety net.

6.3.2. The safety net shall not project above the level of the TLOF, it shall be installed in such a way that it does not create an obstacle to landing and departing helicopters.

6.3.3. The safety net shall be designed such that it is able to protect a person having accidentally stepped over the edge.

6.3.4. The safety net shall have a width of not less than 1.5 metres.

6.3.5. The FATO surface shall slope upwards and outwards at 1:4 with its outer edge not higher than the TLOF surface.

7. Windsock

7.1. All approved Helistops shall be provided with at least one windsock.

7.2. A windsock shall be located so that it provides the pilot with valid wind direction and speed information in the vicinity of the helistop under all wind conditions.

7.3. The windsock shall provide the best possible colour contrast to its background.

7.4. The windsock shall be located outside the safety area.

7.5. For night operations, the windsock shall be internally or externally illuminated.

7.6. The windsock shall be a truncated cone made of lightweight fabric and shall have the dimensions as specified in Table 1.

Table 1: Dimensions of a windsock

	SURFACE LEVEL HELISTOP	ELEVATED HELISTOP
Windsock length	2 m	1.2m
Diameter (larger end)	0.6m	0.3m
Diameter (smaller end)	0.3m	0.15m

8. Helistop markings

8.1. Surfaced-level helistop markings

8.1.1. A surface-level helistop shall be **marked** with a capital letter “H” placed horizontally in the centre of the touch-down area.

8.1.2. The “H” shall be placed so that the parallel stems thereof are orientated with the most desirable direction for take-off and landing.

8.1.3. The dimensions of the ’H’ shall be the following:

a) Height 3 m
b) Width 2 m
c) Width of stems 30 cm

8.1.4. The edges of the TLOF or FATO area shall be marked with a solid line that is 30cm wide.

8.1.5. A helistop intended for private use shall be marked with a white diagonal bar spanning about 45 degrees affixed within the touchdown area from the top right corner to the bottom left corner, interrupted 15cm from the “H” as indicated in Figure 3 and Figure 4.

8.1.6. The colour used for this line shall be white and if so desired may be accentuated by a black outline in order to make it more conspicuous.

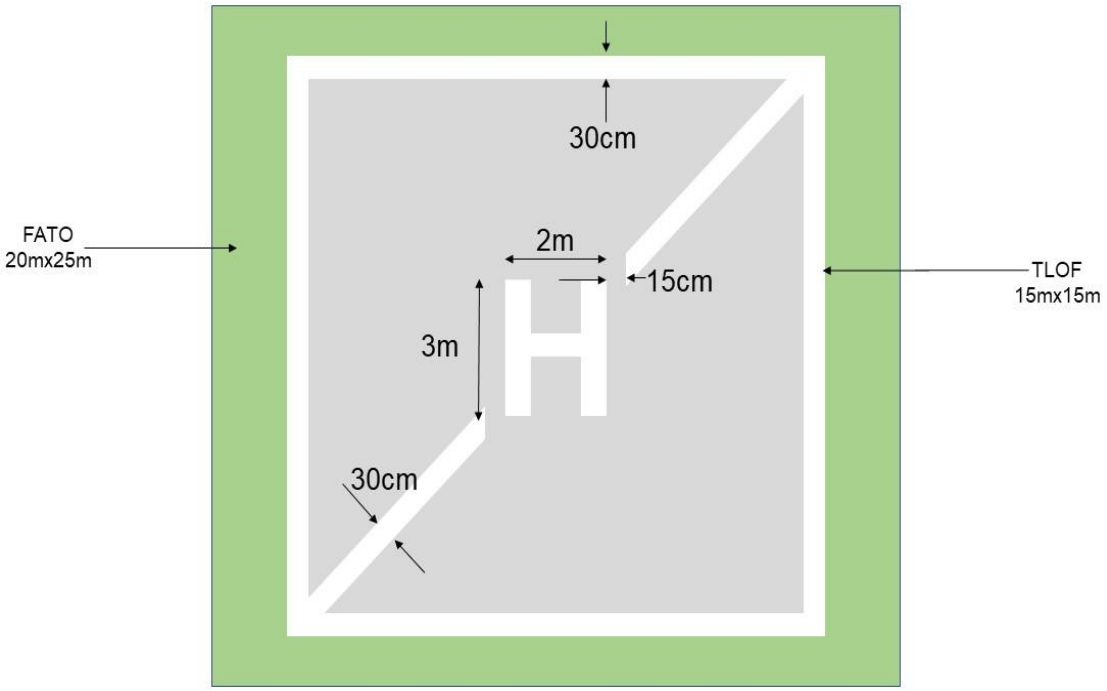

Figure 3. Surface level rectangular helistop markings

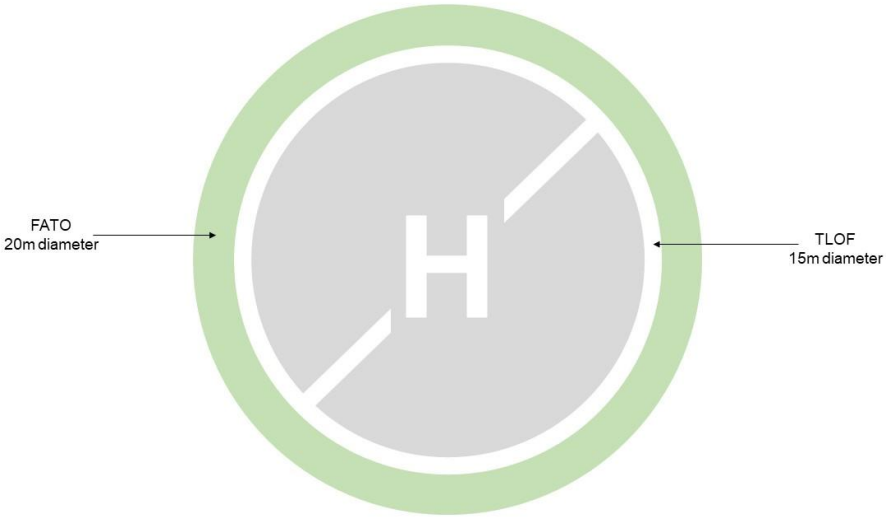

Figure 4. Surface level circular helistop markings

8.2. Elevated helistop markings

8.2.1. Restriction on rotor diameter marking

8.2.1.1. If a restriction on rotor diameter is imposed on a helistop then this shall be indicated by a circled number indicating the maximum permissible rotor diameter in metres.

8.2.1.2. The marking shall be affixed to the top left of the “H” viewed from the most preferred approach direction as indicated in Figure 5 and Figure 6.

8.2.1.3. The size of the circle shall be at least 2 meters in diameter and the width of the band shall be 10 cm wide.

8.2.2. Restriction on operational mass marking

8.2.2.1. An elevated helistop shall indicate the operational mass restriction of a helicopter in accordance with the structure’s strength.

8.2.2.2. The elevated helistop shall be marked with figures indicating the maximum operational mass in metric tonnes, placed to the bottom right of the “H” and underlined with a bar 10 cm wide as indicated in Figure 5 and Figurer 6.

8.2.2.3. The height of the numbers and letters of the figures shall be as indicated in Figure 7.

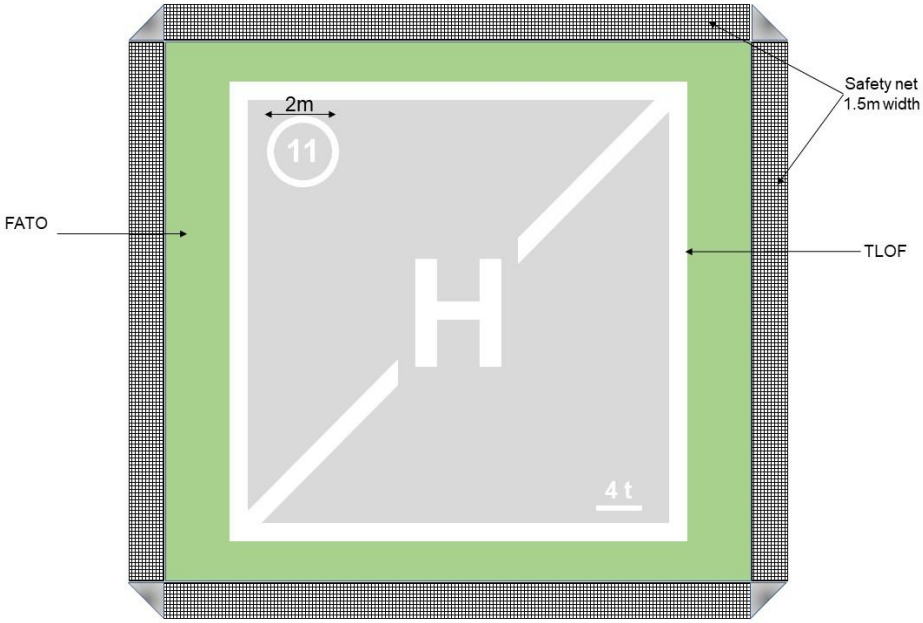

Figure 5. Elevated rectangular helistop markings

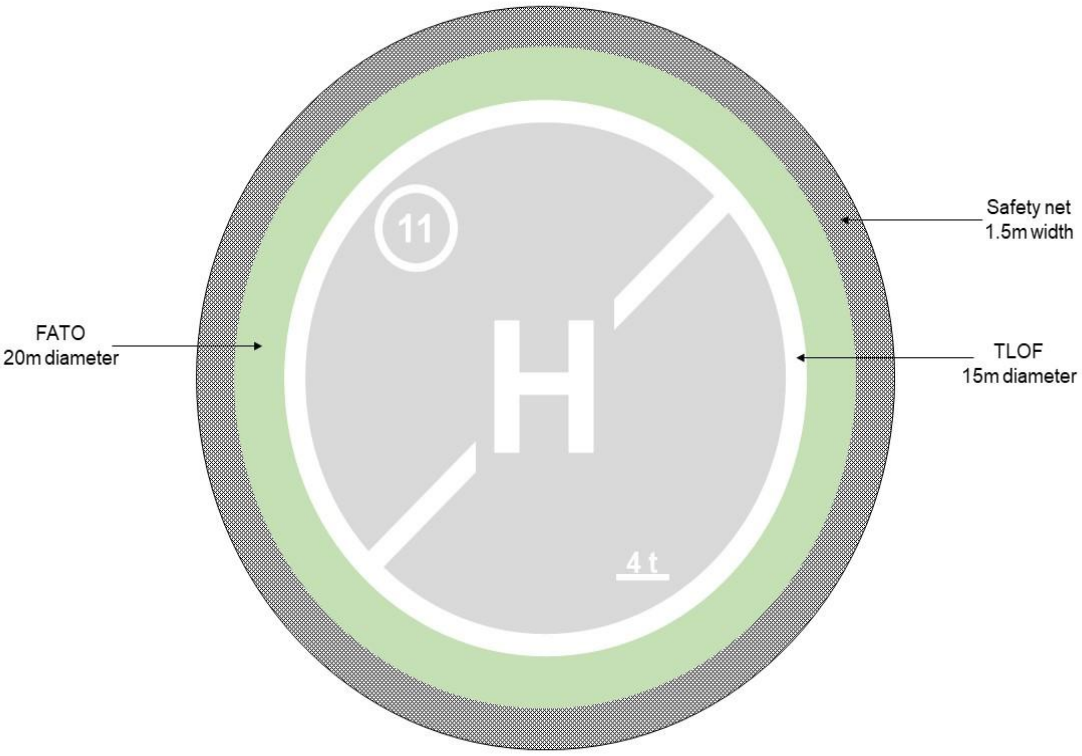

Figure 6. Elevated circular helistop markings

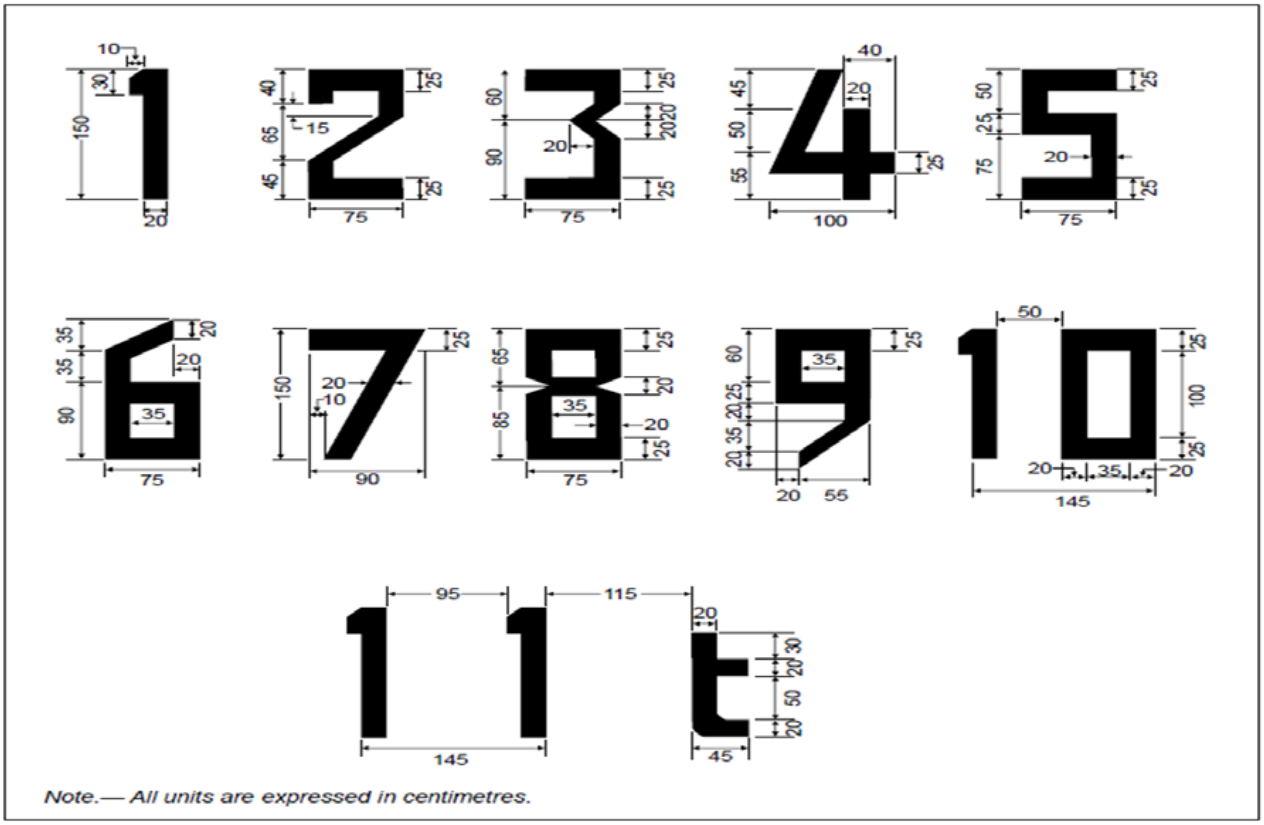

Figure 7: Forms and proportions of numbers and letters

8.3. Hospital helistop markings

8.3.1. A hospital helistop identification marking shall consist of a letter H, white in colour and a red cross, both positioned at the centre of the touchdown and lift-off area.

8.3.2. The white 'H' shall be superimposed over the red- cross and the stems of the 'H' shall be placed so that they are orientated with the most desirable direction for take-off and landing.

8.3.3. The dimensions of the 'H' for a hospital helistop shall be equally applicable to that of a surface level helistop.

8.3.4. The dimensions of the red- cross shall be as indicated as follows:

a) Height 9m
b) Width 9m
c) Width of bars 3m

8.3.5. The markings and specifications of a hospital helistop shall be as indicated in Figure 8 and Figure 9.

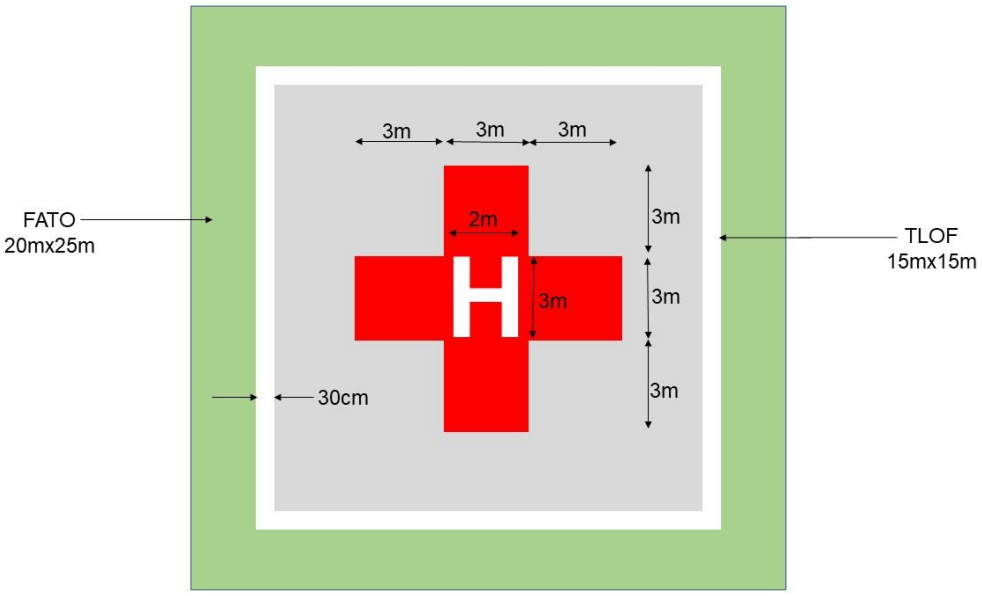

Figure 8. Surface level rectangular hospital helistop markings

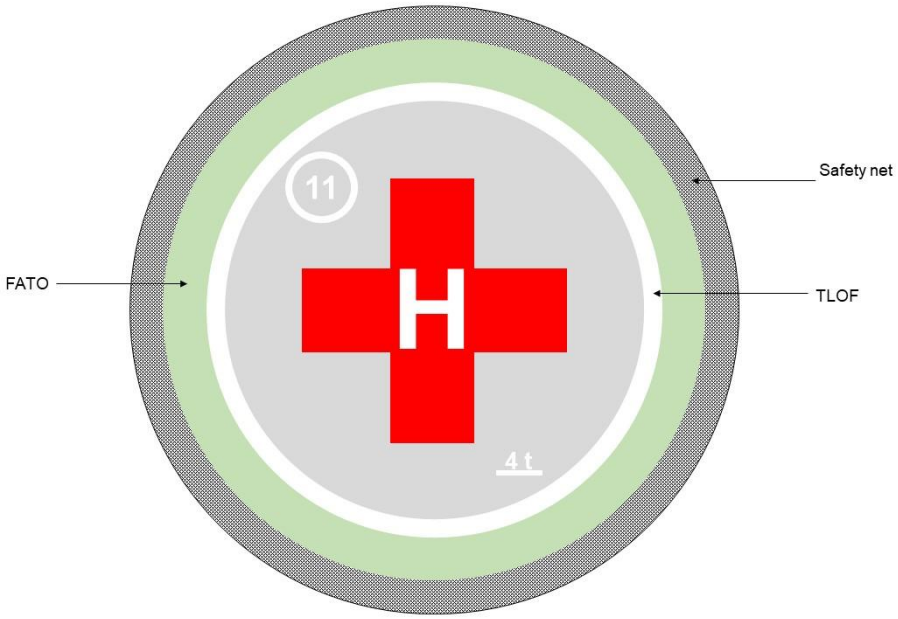

Figure 9. Elevated circular hospital helistop markings

9. Lighting aids for Helistops

9.1. Touchdown and lift-off (TLOF) area lighting

9.1.1. A touchdown and lift off area lighting system shall be provided at a Helistop intended for use at night.

9.1.2. For a TLOF area in a form of a square, there shall be a minimum of four lights on each side including a light at each corner, refer to Figure 10.

9.1.3. For a TLOF area in a form of a circle, there shall be a minimum of 8 uniformly spaced lights, refer to Figure 11.

9.1.4. TLOF perimeter lights shall be fixed omnidirectional lights showing green.

9.1.5. The lights shall be preferably inset when a light extending above the surface would endanger helicopter operations.

9.2. **Final Approach and Take off (FATO) area lighting**

9.2.1. Where a FATO is established at a Helistop intended for use at night, FATO lights shall be provided.

9.2.2. FATO lights shall be placed along the edges and the lights shall be uniformly spaced as follows

a) for an area in the form of a rectangle, there shall be a minimum of four lights per side including a light at each corner, refer to Figure 10.

b) for an area in a form of a circle, there shall be a minimum of twelve equally spaced lights, refer to Figure 11.

9.2.3. FATO lights shall be fixed omnidirectional lights showing white, where the intensity of the lights is to be varied the lights shall show variable white.

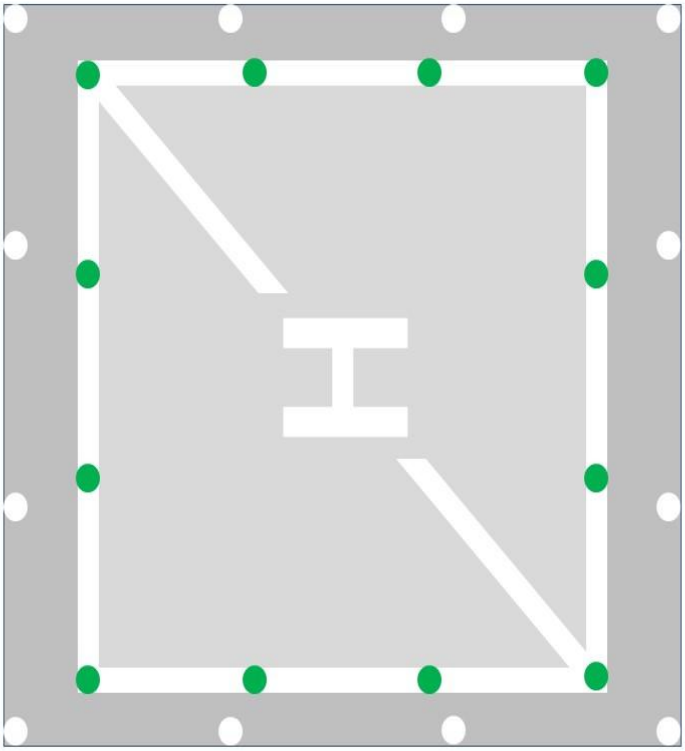

Figure 10. Layout of lighting aids for Helistops

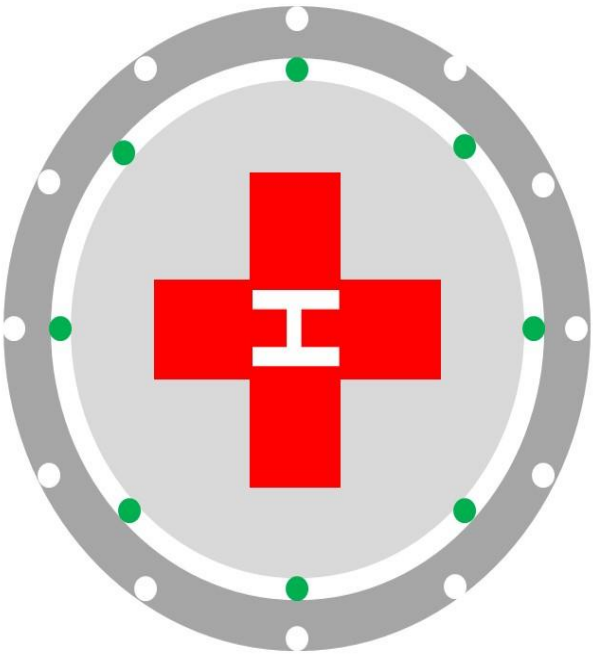

Figure 11. Layout of lighting aids for Helistops

10. Helistop abandoned or closed

10.1. All markings of a closed helistop, e.g. FATO or TLOF area shall be obliterated, the windsock and other visual aids indicating an active heliport shall be removed.

10.2. If it is impractical to obliterate markings, a white X shall be placed over the H, refer to Figure 12.

10.3. The white X shall be large enough to ensure early pilot recognition that the helistop is closed.

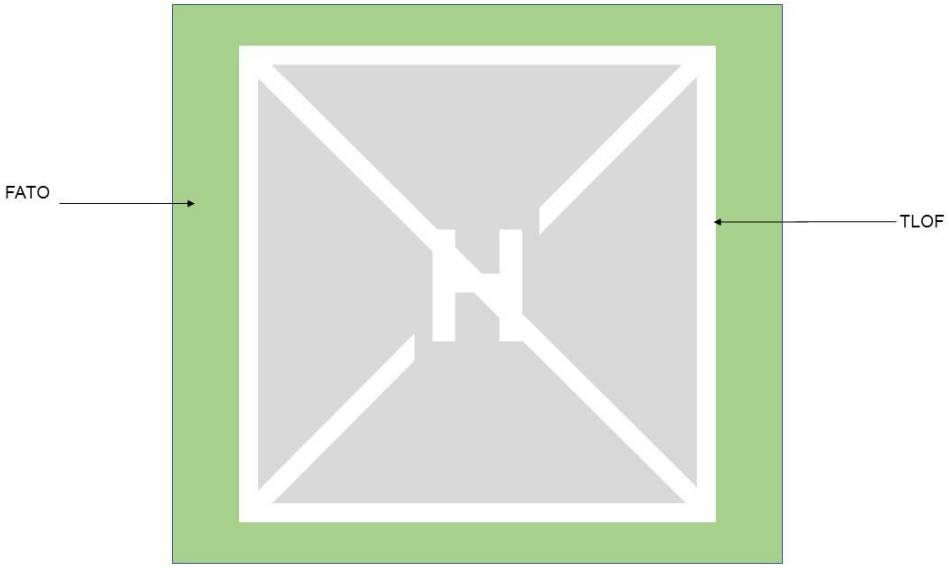

Figure 12. Closed helistop

11. FIRE-FIGHTING EQUIPMENT

11.1. At a surface level Helistop, an applicant shall provide fire extinguishers at the access point to the Helistop, commensurate with the level of operational risk.

11.2. At an elevated Helistop, at least one hose spray line capable of delivering foam in a jet spray pattern at 250 L/min shall be provided.

12. DOCUMENT AUTHORISATION

DEVELOPED BY:		
	BASIL HLATSHWAYO	**23 September 2025**
SIGNATURE OF M: CZH	**NAME IN BLOCK LETTERS**	**DATE**
REVIEWED & VALIDATED BY:		
	NELSON NKABITI	**23 September 2025**
SIGNATURE OF SM: ADFA	**NAME IN BLOCK LETTERS**	**DATE**
APPROVED BY:		
	TEMBISA MAPHIKE	23 September 2025
SIGNATURE OF E: ASI	**NAME IN BLOCK LETTERS**	**DATE**

END