

## RA 3534 - Helicopter Landing Site - Markings

### Rationale

*A Helicopter Landing Site (HLS) can be a confusing place to operate within. If clear indications are not provided to direct Air Systems to the correct areas, or to warn personnel of manoeuvring areas, there is a higher risk of incident. To enhance the safe movement of Air Systems at a HLS, markings are defined to provide clear and consistent information and guidance to the operating community.*

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### Regulation 3534(1)

#### Helicopter Landing Site Identification Markings

3534(1) Heads of Establishment (HoE) and Aviation Duty Holder (ADH) Facing organizations **shall** ensure that HLS identification markings are provided at Permanent HLS.

### Acceptable Means of Compliance 3534(1)

#### Helicopter Landing Site Identification Markings

1. Permanent HLS Identification Markings **should**:
  - a. For all Final Approach and Take Off (FATOs) except runway type FATOs:
    - (1) Be located at or near the centre of the FATO;
    - (2) Be located at the centre of the aiming point marking (except for a hospital HLS) where the FATO does not contain a Touchdown and Lift Off (TLOF) but is marked with an aiming point; and
    - (3) Be located at the centre of the TLOF where the FATO contains a TLOF.
  - b. For runway type FATOs, be located in the FATO and when used in conjunction with FATO designation markings, **should** be displayed at each end of the FATO as shown in Figure 1.
  - c. Consist of a letter H, white in colour. The dimensions of the H marking **should** be no less than as shown in Figure 1 and where the marking is used for a runway-type FATO, its dimensions **should** be increased by a factor of 3 as shown in Figure 1; and
  - d. Be oriented with the cross arm of the H at right angles to the preferred final approach direction.

**Acceptable  
Means of  
Compliance  
3534(1)**

2. A Domestic HLS at a hospital **should** consist of a letter H, red in colour, on a white cross made of squares adjacent to each of the sides of a square containing the H.

*Figure 1. HLS Identification Markings*



**Guidance  
Material  
3534(1)**

**Helicopter Landing Site Identification Markings**

**Civil Equivalence.**

3. This regulation is in line with International Civil Aviation Organization (ICAO) Annex 14 Vol II para 5.2.

**Regulation  
3534(2)**

**Permanent Helicopter Landing Site - Final Approach and Take Off Dimensions and Markings**

- 3534(2) HoEs and ADH Facing organizations **shall** ensure that, where the extent of the FATO is not self-evident, FATO markings are provided.

**Acceptable  
Means of  
Compliance  
3534(2)**

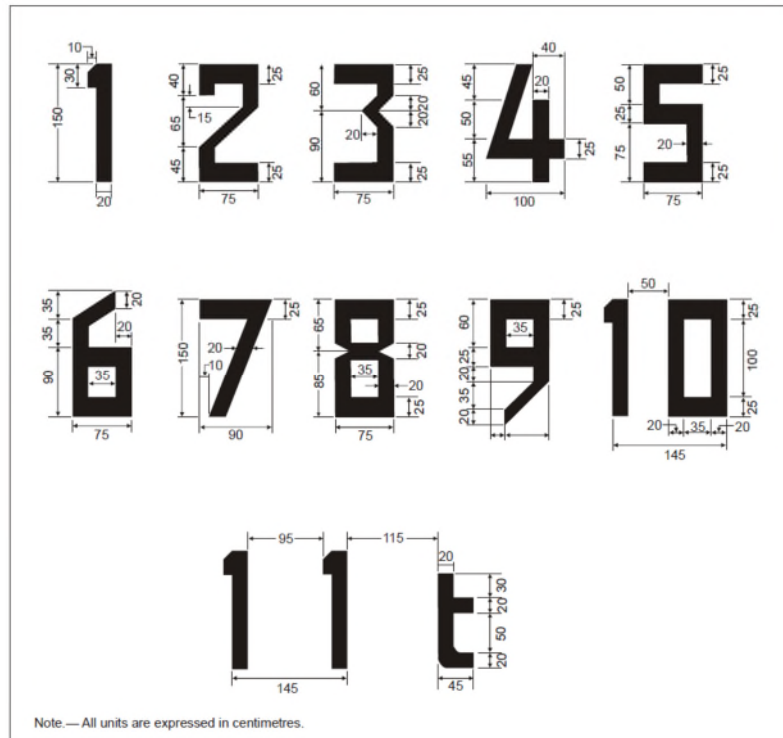
**Permanent Helicopter Landing Site - Final Approach and Take Off Dimensions and Markings**

4. FATO dimension markings **should**:
- Be located within the FATO and so arranged as to be readable from the preferred final approach direction;
  - Be marked on a FATO intended for:
    - Use by helicopters operated in performance Class 1; or
    - Use by helicopters operated in performance Class 2 or 3 is less than 1D<sup>1</sup>.
  - Be rounded to the nearest metre or foot.
  - Rectangular FATOs **should** have both the length and width of the FATO relative to the preferred approach direction indicated;
  - For all FATOs except runway type FATOs, have a colour contrasting with the background and **should** be in the form and proportion shown in Figure 2 for a FATO with a dimension of more than 30m. For a FATO with a dimension between 15m to 30m the height of the numbers of the marking **should** be a minimum of 90cm, and for a FATO with a dimension of less than 15m the height of the numbers of the marking **should** be a minimum of 60cm, each with a proportional reduction in width and thickness;
  - For runway type FATOs, have a colour contrasting with the background and **should** be in the form and proportion shown in Figure 2.

<sup>1</sup> Where D is the largest overall dimension of the helicopter using the HLS.

Acceptable  
Means of  
Compliance  
3534(2)

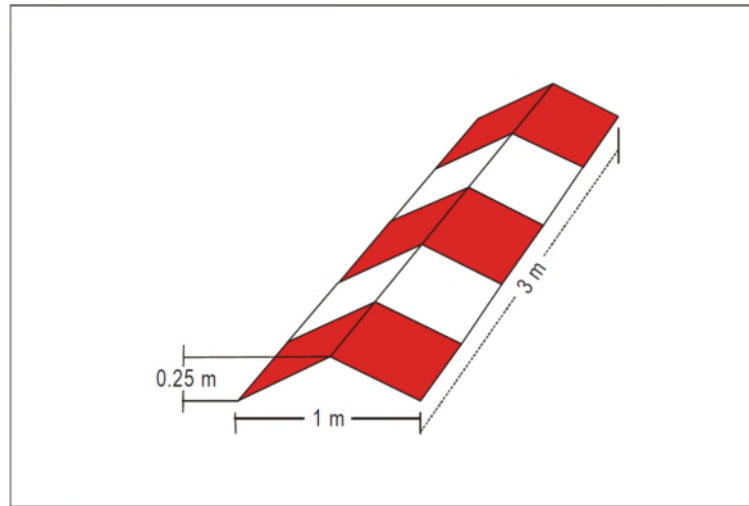
Figure 2. Character Form and Proportion



5. FATO perimeter markings or markers **should**:
- a. Be located on the edge of the FATO;
  - b. For runway type FATOs:
    - (1) Be defined with markings or markers spaced at equal intervals of not more than 50m with at least three markings or markers on each side including a marking or marker at each corner;
    - (2) Where markers are used, be of colours that contrast effectively against the operating background and have dimensional characteristics as shown in Figure 3; and
    - (3) Where markings are used, be white in colour and be a rectangular stripe with a length of 9m or one-fifth of the side of the FATO which it defines and a width of 1m;
  - c. For all FATOs except runway type FATOs:
    - (1) Be 30cm in width, 1.5m in length, and with end-to-end spacing of not less than 1.5m and not more than 2m. The corners of a square or rectangular FATO **should** be defined;
    - (2) Be flush in-ground markers for an unpaved FATO.
    - (3) Have a dashed line for a paved FATO.
    - (4) Be white in colour (both markings and flush in-ground markers).

**Acceptable  
Means of  
Compliance  
3534(2)**

Figure 3. Marker Colouring and Dimension



6. Where it is necessary to designate the runway type FATO to the pilot, a FATO designation marking **should**:
- Be located at the beginning of the FATO as shown in Figure 1;
  - Consist of a two-digit number. The two-digit number **should**:
    - Be the whole number nearest the one-tenth of the magnetic North when viewed from the direction of approach;
    - When the above rule would give a single digit number, it **should** be preceded by a zero; and
    - Be supplemented by HLS identification marking as per RA 3534(1).

**Guidance  
Material  
3534(2)**

**Permanent Helicopter Landing Site - Final Approach and Take Off Dimensions and Markings**

7. FATO perimeter marking or markers must be provided at a surface-level heliport where the extent of the FATO is not self-evident. FATO perimeter markers may be a single colour, orange or red, or two contrasting colours, orange and white or, alternatively, red and white may be used except where such colours would merge with the background.

**Civil Equivalence.**

8. This regulation is in line with ICAO Annex 14 Vol II para 5.2.

**Regulation  
3534(3)**

**Permanent Helicopter Landing Site - Aiming Point Markings**

3534(3) HoEs and ADH Facing organizations **shall** ensure that an aiming point is provided at a Permanent HLS where it is necessary for a pilot to make an approach to a point above a FATO before proceeding to a TLOF.

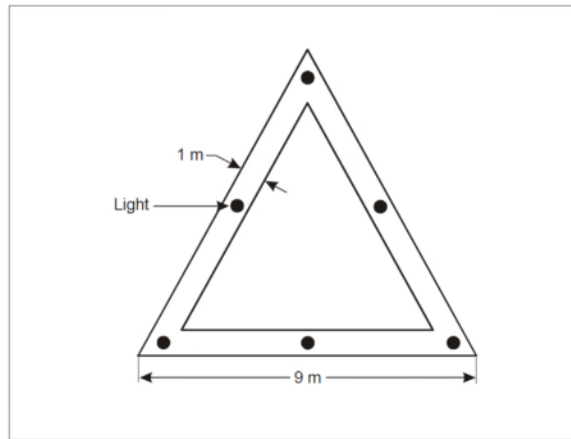
**Acceptable  
Means of  
Compliance  
3534(3)**

**Permanent Helicopter Landing Site - Aiming Point Markings**

9. Aiming point markings **should**:
- For runway-type FATOs, be located within the FATO;
  - For all FATOs except runway type FATOs, be located at the centre of the FATO.
  - Be an equilateral triangle with the bisector of one of the angles aligned with the preferred approach direction; and
  - Consist of continuous white lines, and the dimensions of the marking **should** conform to those shown in Figure 4.

**Acceptable Means of Compliance 3534(3)**

Figure 4. Aiming Point Marking Dimensions



**Guidance Material 3534(3)**

**Permanent Helicopter Landing Site - Aiming Point Markings Civil Equivalence.**

10. This regulation is in line with ICAO Annex 14 Vol II para 5.2.

**Regulation 3534(4)**

**Permanent Helicopter Landing Site - Touchdown and Lift Off Markings**

3534(4) HoEs and ADH Facing organizations **shall** ensure that a TLOF perimeter marking is displayed if the perimeter of the TLOF is not self-evident.

**Acceptable Means of Compliance 3534(4)**

**Permanent Helicopter Landing Site - Touchdown and Lift Off Markings**

11. TLOF perimeter markings **should**:

- a. Be located along the edge of the TLOF;
- b. Consist of a continuous white line with a width of at least 30cm; and
- c. Be provided for each TLOF collocated with a helicopter stand.

**Guidance Material 3534(4)**

**Permanent Helicopter Landing Site - Touchdown and Lift Off Markings**

12. The values in Figure 5 may be used to determine TLOF perimeter markings to cater for increased conspicuity for large TLOF.

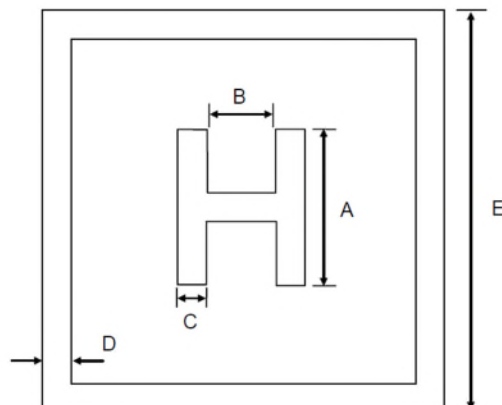
**Civil Equivalence.**

13. This regulation is in line with ICAO Annex 14 Vol II para 5.2.

Figure 5. TLOF Perimeter Markings

TLOF size in metres	Line thickness in metres	
	C	D
E		
13-18	1.0	0.4
18-24	1.3	0.6
24-30	1.5	0.6
30-45	2.0	0.75

A = 0.6 E (maximum 20m)  
 B = 0.5 A



**Regulation  
3534(5)****Permanent Helicopter Landing Site - Touchdown / Positioning Markings**

3534(5) HoEs and ADH Facing organizations **shall** ensure that a touchdown / positioning marking is provided where it is necessary for a helicopter to touch down and/or be accurately positioned by the pilot. A touchdown/positioning marking **shall** be provided on a helicopter stand designed for turning.

**Acceptable  
Means of  
Compliance  
3534(5)****Permanent Helicopter Landing Site - Touchdown / Positioning Markings**

14. Touchdown / positioning markings **should**:
- Be located so that when the pilot's seat is over the marking, the whole of the undercarriage will be within the TLOF and all parts of the helicopter will be clear of any obstacle by a safe margin;
  - Be located in the centre of the TLOF;
  - For a stand designed for hover turning, be located at the centre of the central zone (RA 3531<sup>2</sup>);
  - Be a yellow circle and have a line width of at least 0.5m; and
  - Have an inner diameter of 0.5D of the largest helicopter the TLOF and/or the helicopter stand is intended to serve.

**Guidance  
Material  
3534(5)****Permanent Helicopter Landing Site - Touchdown / Positioning Markings**

15. The centre of the touchdown / positioning marking may be offset away from the centre of the TLOF where an aeronautical study indicates such offsetting to be necessary and providing that a marking so offset would not adversely affect safety.

**Civil Equivalence.**

16. This regulation is in line with ICAO Annex 14 Vol II para 5.2.

**Regulation  
3534(6)****Permanent Helicopter Landing Site - Air Taxiway Markers and Markings**

3534(6) HoEs and ADH Facing organizations **shall** ensure that the centre-line of a helicopter Air Taxiway or, if not self-evident, the edges of a helicopter Air Taxiway are identified with markers or markings.

**Acceptable  
Means of  
Compliance  
3534(6)****Permanent Helicopter Landing Site - Air Taxiway Markers and Markings**

17. Air Taxiway centre-line markings **should**:
- Be located along the centre-line of the helicopter Air Taxiway; and
  - On a paved surface, be a continuous yellow line 15cm in width.
18. Air Taxiway centre-line markers **should**:
- Be flush in-ground type markers and located along the centre-line of the helicopter Air Taxiway; and
  - When on an unpaved surface, be flush in-ground, 15cm wide and approximately 1.5m in length yellow markers, spaced at intervals of not more

<sup>2</sup> Refer to RA 3531 - Helicopter Landing Site - Physical Characteristics.

**Acceptable  
Means of  
Compliance  
3534(6)**

- than 30m on straight sections and not more than 15m on curves, with a minimum of four equally spaced markers per section.
19. Air Taxiway edge markings **should**:
    - a. Be located along the edges of a helicopter Air Taxiway; and
    - b. When on a paved surface, be yellow lines each 15cm in width, and spaced 15cm apart (nearest edge to nearest edge).
  20. Air Taxiway edge markers **should**:
    - a. Be located at a distance of 1m to 3m beyond the edge of the helicopter Air Taxiway. The markers **should** be placed no closer than 0.5 times the largest overall width for which it is designed from the centre-line of the helicopter Air Taxiway;
    - b. Be spaced at intervals of not more than 30m on each side of straight sections and not more than 15m on each side of curves, with a minimum of four equally spaced markers per section;
    - c. Be frangible; and
    - d. Have a minimum area of 150cm square.
  21. Air Taxiway edge markers **should not**:
    - a. Penetrate a plane originating at a height of 25cm above the plane of the helicopter Air Taxiway, at a distance of 1m from the edge of the helicopter Air Taxiway and sloping upwards and outwards at a gradient of 5% to a distance of 3m beyond the edge of the helicopter Air Taxiway;
    - b. Penetrate a plane originating at a height of 25cm above the plane of the helicopter Air Taxiway, at a distance of 0.5 times the largest overall width of the helicopter for which it is designed from the centre-line of the helicopter Air Taxiway, and sloping upwards and outwards at a gradient of 5%;
    - c. Exceed 35cm above ground or snow level;
    - d. Be used on helicopter Ground Taxiways. In this case, taxiway markers **should** be used as detailed in RA 3517(5)<sup>3</sup>.
  22. Air Taxiway markers:
    - a. **Should** be of colours that contrast effectively against the operating background;
    - b. **Should** be internally illuminated or retro-reflective if the Air Taxiway will be used at night; and
    - c. **Should not** use the colour red.

**Guidance  
Material  
3534(6)**

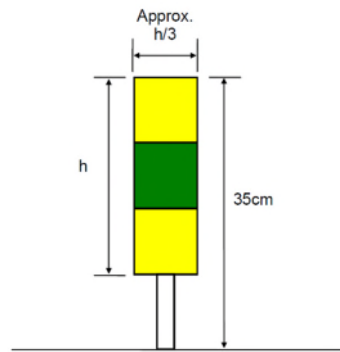
**Permanent Helicopter Landing Site - Air Taxiway Markers and Markings**

23. Where there is potential for a helicopter Air Taxiway to be confused with a helicopter Ground Taxiway, signage may be required to indicate the mode of taxi operations that are permitted.
  24. Good contrast and visibility can be achieved by having the marker divided into three equal, horizontal bands coloured yellow, green and yellow, respectively with a height to width ratio, as viewed by the pilot of 3 to 1 and a minimum area of the marker of 150cm square (Figure 6).
- Civil Equivalence.**
25. This regulation is in line with ICAO Annex 14 Vol II para 5.2.

<sup>3</sup> Refer to RA 3517 – Permanent Fixed Wing Aerodrome - Markers.

**Guidance  
Material  
3534(6)**

Figure 6. Air Taxiway Marker Dimensions



**Regulation  
3534(7)**

**Permanent Helicopter Landing Site - Air Taxi Route Markers**

3534(7) HoEs and ADH Facing organizations **shall** ensure that Air Taxi routes, where established, are marked with Air Taxi route markers.

**Acceptable  
Means of  
Compliance  
3534(7)**

**Permanent Helicopter Landing Site - Air Taxi Route Markers**

26. Air Taxi route markers **should**:
- Be located along the centre-line of the Air Taxi route and spaced at intervals of not more than 60m on straight sections and 15m on curves;
  - Be frangible;
  - Be of colours that contrast effectively against the operating background. The colour red **should not** be used for markers; and
  - Extend no greater than 1m above ground level.

**Guidance  
Material  
3534(7)**

**Permanent Helicopter Landing Site - Air Taxi Route Markers**

27. Good contrast and visibility can be achieved by having the marker divided into three equal, vertical bands coloured yellow, green and yellow, respectively with a height to width ratio, as viewed by the pilot, of 1 to 3 and a minimum area of the marker of 1500cm square (Figure 6).

**Civil Equivalence.**

28. This regulation is in line with ICAO Annex 14 Vol II para 5.2.

**Regulation  
3534(8)**

**Permanent Helicopter Landing Site - Helicopter Stand Markings**

3534(8) HoEs and ADH Facing organizations **shall** ensure that helicopter stands, where established, are marked with helicopter stand markers.

**Acceptable  
Means of  
Compliance  
3534(8)**

**Permanent Helicopter Landing Site - Helicopter Stand Markings**

29. Helicopter stand perimeter markings **should**:
- Be provided where a helicopter stand is designed for turning. If not practicable, a central zone perimeter marking **should** be provided instead if the perimeter of the central zone is not self-evident;
  - Be concentric with the central zone of the stand; and
  - Be a yellow circle and have a line width of 15cm (for both perimeter markings and a central zone marking if provided). If a TLOF is co-located with the helicopter stand, TLOF markings **should** be applied.
30. Helicopter stand stop line markings:



**Acceptable  
Means of  
Compliance  
3534(8)**

- a. **Should** be provided where a helicopter stand is intended to be used for taxi-through and which does not allow the helicopter to turn;
  - b. **Should** be located on the helicopter Ground Taxiway at right angles to the centre-line; and
  - c. **Should not** be less than the width of the helicopter Ground Taxiway and have a thickness of 50cm.
31. Helicopter stand identification markings **should**:
- a. Be provided where there is a need to identify individual stands; and
  - b. Be marked in a contrasting colour to be easily readable.

**Guidance  
Material  
3534(8)**

**Permanent Helicopter Landing Site - Helicopter Stand Markings**

32. 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.
33. Additional markings relating to stand size may be provided.

**Civil Equivalence.**

34. This regulation is in line with ICAO Annex 14 Vol II para 5.2.

**Regulation  
3534(9)**

**Permanent Helicopter Landing Site - Flight Path Alignment  
Guidance Marking**

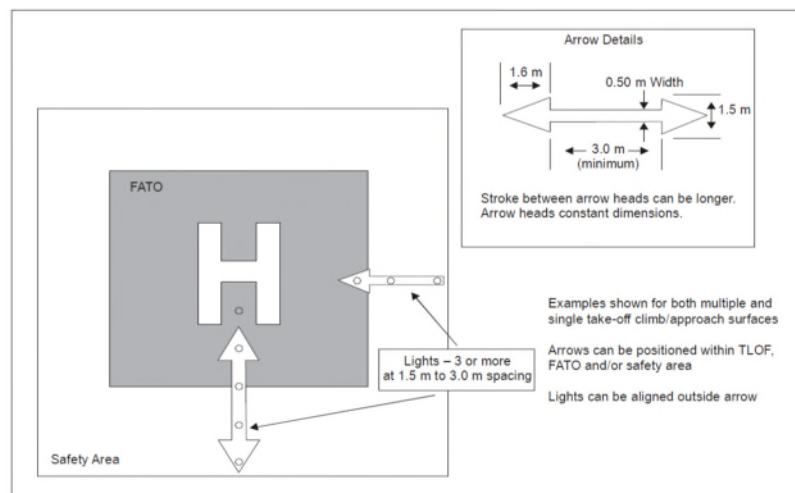
- 3534(9) HoEs and ADH Facing organizations **shall** ensure that flight path alignment guidance marking(s) are provided at Permanent HLS where it is required to indicate available approach and/or departure path direction(s).

**Acceptable  
Means of  
Compliance  
3534(9)**

**Permanent Helicopter Landing Site - Flight Path Alignment  
Guidance Marking**

35. Flight path alignment guidance markings **should**:
- a. Be located in a straight line along the direction of approach and/or departure path on one or more of the TLOF, FATO, safety area or any suitable surface in the immediate vicinity of the FATO or safety area;
  - b. Consist of one or more arrows marked on the TLOF, FATO and/or safety area surface as shown in Figure 7. The stroke of the arrow **should** be 50cm in width and at least 3m in length; and
  - c. Be a colour which provides good contrast against the background colour of the surface on which they are marked, preferably white.

*Figure 7. Flight Path Alignment Guidance Marking*



**Guidance  
Material  
3534(9)****Permanent Helicopter Landing Site - Flight Path Alignment  
Guidance Marking**

36. In the case of a flight path limited to a single approach direction or single departure direction, the arrow marking may be unidirectional. In the case of a HLS with only a single approach / departure path available, one bidirectional arrow may be marked.

**Civil Equivalence.**

37. This regulation is in line with ICAO Annex 14 Vol II para 5.2.