The International Federation of Air Line Pilots' Associations

IFALPA

The Global Voice of Pilots

IFALPA TECHNICAL MANUAL

ANNEX 14 – VOLUME 1

A E R O D R O M E S

March 2018

IFALPA TECHNICAL MANUAL ANNEX 14, VOLUME I

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Ratified at the 2018 IFALPA Conference, the following change is presented in blue:

Chapter 3: Surface of Runways
Chapter 5: Visual Approach Slope Indicator Systems

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LIST OF CHANGES

Ratified at the 2018 IFALPA Conference, the following changes are presented in blue:

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CHAPTER 1 GENERAL

1.1 DEFINITIONS

Apron management service. *A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that there is a requirement for an "apron control service" when operations take place in low visibility (taxiway) conditions and/or where the volume of traffic and operating conditions demand it, when it will be necessary to implement procedures to control who or what is on the apron (see also the IFALPA policy with respect to para. 9.5 of Chapter 9).

Therefore, the following addition is proposed to the ICAO Definitions:

Apron control service. A service provided to control the activities and the movement of aircraft, vehicles and personnel on the apron.

POL-STAT 1983 [Reaffirmed 2013]

Further amendments and additions to the ICAO text are required as follows:

Contaminated runway. A runway with surface friction coefficient reduced by any contaminant to be less than that of a clean, dry, hard surface runway.

A runway where a contaminant has reduced the friction co-efficient of a clean, dry, hard surface runway.

POL-STAT [Reaffirmed 2013]

Critical rescue and fire fighting access area. A rectangular area, symmetrical about the runway, having a width of 300 m (1000 feet) and a length exceeding that of the runway by 2000 m (6600 feet).

For a pictorial description of this area, see Appendix 1 to this Annex.

POL-STAT [Reaffirmed 2013]

STATUS AND DATE

Rapid response area (RRA). A rectangle that includes the runway and the surrounding area. Its width extends 500 ft (152m) outward from each side of the runway centreline, and its length is 1650 ft (500m) beyond each runway end.

POL-STAT 1999 [Reaffirmed 2013]

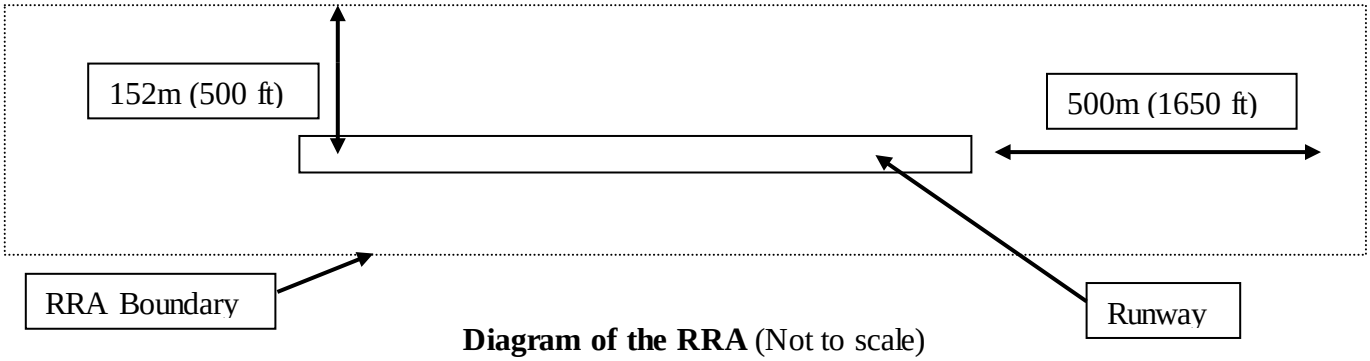

Diagram of the RRA (Not to scale)

1.5 AIRPORT DESIGN

1.5.1 ICAO para. 1.5.1 States: Architectural and infrastructure-related requirements for the optimum implementation of international civil aviation security measures shall be integrated into the design and construction of new facilities and alterations to existing facilities at an aerodrome.

ICAO ANNEX 14 7TH EDITION

Note.— Guidance on all aspects of the planning of aerodromes including security considerations is contained in the Airport Planning Manual (Doc 9184), Part 1.

IFALPA POLICY

IFALPA believes that operational safety should also be considered in the design of aerodrome facilities and therefore the text of ICAO para 1.5.1 should be amended to read:

Architectural and infrastructure-related requirements for the optimum implementation of international civil aviation operational safety and security measures shall be integrated into the design and construction of new facilities and alterations to existing facilities at an aerodrome.

POL-STAT 2006 [Reaffirmed 2016]

Note.— Guidance on all aspects of the planning of aerodromes including operational safety and security considerations is contained in the Airport Planning Manual, Part 1 and the Air Traffic Services Planning Manual Doc 9426-AN/924, Part III.

Further text should be added to read:

POL-STAT 2006 [Reaffirmed 2016]

The design and location of the aerodrome control tower shall permit the controller to survey those portions of the aerodrome and its vicinity over which control is exercised.

STATUS AND DATE

Add new IFALPA policy **1.5.X**

POL-STAT 2007 [Reaffirmed 2017]

Configuration and infrastructure-related requirements for the optimum implementation of international civil aviation runway incursion prevention measures shall be integrated into the design and construction of new runways and taxiways and alterations to existing runways and taxiways.

Note- Guidance on all aspects of the design of aerodromes, including runway incursion prevention measures, is contained in the Aerodrome Design Manual.

Note- Guidance on all aspects of the planning of aerodromes, including security considerations and runway incursion prevention measures, is contained in the Airport Planning Manual.

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CHAPTER 2 AERODROME DATA

2.4 AERODROME REFERENCE TEMPERATURE

2.4.2 ***ICAO para. 2.4.2*** *Recommends that the aerodrome reference temperature should be the monthly mean of the daily maximum temperatures for the hottest month of the year (the hottest month being that which has the highest monthly mean temperature). This temperature should be averaged over a period of years.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA strongly supports this definition of aerodrome reference temperature since the temperature calculated to this revised definition will produce a higher value than that calculated to the old definition which was based on mean daily temperature (which includes night temperature). Since most operations take place during day time, it is considered that the new definition will give rise to greater runway lengths for airport planning purposes.

POL-STAT 1977 [Reaffirmed 2013]

IFALPA considers, therefore, that the ICAO definition of aerodrome reference temperature should be upgraded to the status of Standard, changing "should" to "shall".

2.9 CONDITION OF THE MOVEMENT AREA AND RELATED FACILITIES

2.9.2 ***ICAO para. 2.9.2*** *states that the condition of the movement area and the operational status of related facilities shall be monitored and reports on matters of operational significance affecting aircraft and aerodrome operations shall be provided in order to take appropriate action, particularly in respect of the following:*

ICAO ANNEX 14 7TH EDITION

a) construction or maintenance work;

b) rough or broken surfaces on a runway, a taxiway or an apron;

c) snow, slush, ice or frost on a runway, a taxiway, or an apron;

d) water on a runway, a taxiway or an apron;

e) snow banks or drifts adjacent to a runway, a taxiway or an apron;

f) anti-icing or de-icing liquid chemicals on a runway, taxiway, or apron;

g) other temporary hazards, including parked aircraft;

h) failure or irregular operation of part or all of the aerodrome visual aids; and

i) failure of the normal or secondary power supply.

STATUS AND DATE

Note 1.— Other contaminants may include mud, dust, sand, volcanic ash, oil and rubber. Annex 6, Part I — International Commercial Air Transport — Aeroplanes, Attachment C provides guidance on the description of runway surface conditions. Additional guidance is included in the Airport Services Manual (Doc 9137), Part 2.

Note 2. — Particular attention would have to be given to the simultaneous presence of snow, slush, ice, wet ice, snow on ice with anti-icing or de-icing liquid chemicals.

Note 3. — See 2.9.11 for a list of winter contaminants to be reported.

IFALPA POLICY

IFALPA believes that the effect of all natural or unnatural surface contaminants on aircraft performance should be assessed whenever it is not possible to completely clear the runway, taxiway or apron of these contaminants. The effects of displacement and impingement drag on aircraft performance should be assessed as well as the effects of any contaminants on aircraft braking. The effects of contaminants on aircraft braking may be provided as generic (effective) braking action values for a particular aircraft depending on the type and amount of contaminant or may be based on friction measurements. Generic braking action values or friction measurements should adequately correlate with aircraft performance and should be reported in a timely fashion by ATS to the aircraft concerned. In case adequate correlation between generic braking action values or measured friction values with aircraft performance is not possible, sufficiently large safety factors should be installed.

POL-STAT 2007 [Reaffirmed 2017]

IFALPA believes that ultimately the pilot shall be given a factor to determine the increase in landing distance, based on the actual runway condition.

IFALPA considers that all runway surfaces must have the best surface friction characteristics possible.

See also IFALPA Annex 14, Chapter 5, para 5.2.1.4 concerning friction characteristics of paint used for runway markings.

The Federation accepts the provision of para. 2.9.2 subject to the amendments referred to hereafter:

Amend the current sub-para f as follows:

Anti-icing or de-icing ~~liquid~~ chemicals on a runway, taxiway or apron.

POL-STAT 2007 [Reaffirmed 2017]

Add a note on the need to monitor the condition of paint markings for reduced friction from wear:

j) Rubber deposits and slippery paint markings, with an accompanying Note reading "See the Aerodrome Design Manual, Part 4."

POL-STAT 2007 [Reaffirmed 2017]

Paint markings can become very slippery as they wear out. Rubber deposits and other natural or unnatural contaminants such as mud, dust, sand, oil and anti- or de-icing chemicals can also result in reduced friction.

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2.11 RESCUE AND FIRE FIGHTING

2.11.2 ***ICAO para. 2.11.2*** *recommends that the level of protection normally available at an aerodrome should be expressed in terms of the category of the rescue and fire fighting services as described in 9.2 and in accordance with the types and amounts of extinguishing agents normally available at the aerodrome.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that this Recommended Practice should be upgraded to a Standard, changing "should" to "shall".

POL-STAT 1984 [Reaffirmed 2013]

2.11.3 ***ICAO para. 2.11.3*** *states that changes in the level of protection normally available at an aerodrome for rescue and firefighting shall be notified to the appropriate air traffic services units and aeronautical information units to enable those units to provide the necessary information to arriving and departing aircraft. When such a change has been corrected, the above units shall be advised accordingly.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

Specifically, the necessary information should be the subject of a NOTAM, and this should be stated. Therefore the following amendment is required:

POL-STAT 1984 [Reaffirmed 2013]

After the words ".... provide the necessary information to arriving and departing aircraft" in para. 2.11.3, **ADD** the words "and be the subject of a NOTAM".

2.11.4 ***ICAO para. 2.11.4*** *Recommends that a change should be expressed in terms of the new category of the rescue and firefighting service available at the aerodrome.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that this Recommended Practice should be upgraded to a Standard, changing "should" to "shall".

POL-STAT 1984 [Reaffirmed 2013]

STATUS AND DATE

CHAPTER 3 PHYSICAL CHARACTERISTICS

3.1 RUNWAYS

NUMBER AND ORIENTATION OF RUNWAYS

3.1.1 ***ICAO para. 3.1.1*** *Recommends that the number and orientation of runways at an aerodrome should be such that the usability factor of the aerodrome is not less than 95 per cent for the aeroplanes that the aerodrome is intended to serve.*

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3.1.2 ***ICAO sub-section 3.1.2*** *recommends the siting and orientation of runways at an aerodrome should, where possible, be such that the arrival and departure tracks minimize interference with areas approved for residential use and other noise-sensitive areas close to the aerodrome in order to avoid future noise problems.*

3.1.3 ***ICAO sub-section 3.1.3*** *recommends the choice of maximum permissible crosswind components*

3.1.4 ***ICAO sub-section 3.1.4*** *recommends data to be used for the calculation of the usability factor.*

IFALPA POLICY

IFALPA considers that paragraphs 3.1.1, 3.1.2, 3.1.3 and 3.1.4 in the ICAO text should be deleted and be replaced by the following:

"3.1.1 The number and orientation of run-ways at an aerodrome shall where possible be at least two runways giving four landing directions, except that, at aerodromes where there is high traffic density and prevailing cross wind conditions do not exceed a maximum speed of 13kts, then two parallel runways may be provided.

POL STAT 2011

3.1.2 The main instrument runway shall be orientated to provide maximum safety consistent with maximum utilisation. This shall be achieved by orientating the runway in the direction associated with the prevailing wind in conditions of low visibility and/or cloud base. Any secondary runways shall be orientated so as to be fully usable when the main instrument runway becomes inoperative with the need to ensure maximum safety taken into account.

POL STAT 2011

3.1.3 The selection of data to be used for the calculation of the usability factor shall be based on reliable wind distribution statistics that extend over as long a period as possible, preferably of not less than five years. The observations used shall be made at least twelve times daily during the planned hours of operation and spaced at equal intervals of time. In addition, the data used shall include usability affected by low visibility conditions, snow or ice, radio aid failures, approach light failures and disabled aircraft which close the runway or runways."

POL STAT 2011

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3.1.4 Once the requirements stated in para 3.1.1, 3.1.2 and 3.1.3 have been satisfied, the siting and orientation of a runway or runways at an aerodrome should, where possible, be such that the arrival and departure tracks minimize interference with areas approved for residential use and other noise-sensitive areas close to the aerodrome in order to avoid future noise problems. **POL STAT 2011**

3.1.1, 3.1.2, and 3.1.3 IFALPA further considers that this text should be given the status of a Standard. **POL STAT 2011**

WIDTH OF RUNWAYS

3.1.10 ***ICAO para. 3.1.10*** *recommends that the width of a runway should not be less than the appropriate dimension specified in the tabulation given. This tabulation shows that for codes D and E, the runway width should be not less than 45 metres.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

The safety considerations associated with minimum runway width criteria have been given greater impetus since the introduction of wide bodied twin aisle aircraft. IFALPA has expressed its reservations about the inadequate certification of the V_{MCG} performance of these types with respect to crosswind. In addition, the powerful low-slung engines can ingest surface debris off the sides of the runway and thereby increase the likelihood of engine damage. Operational factors, such as 180^{o} turns on the runway, add potential for runways to be closed due to excursions off the runway edge. This is of particular concern where only one major runway is provided. **POL-STAT 2014**

Therefore the width of the runways intended to be used by aircraft of the codes D, E and F should be not less than 60 metres. Accordingly, the tabulation presented in para. 3.1.9 of ICAO Annex 14 should be amended by deletion of "45m", where it appears under columns D and E, and substitution by "60m". **POL-STAT 2014**

See also IFALPA Annex 14, para. 3.2.1 for associated policy related to the provision of runway shoulders.

Code Number	CODE LETTER					
	A	B	C	D	E	F
1[a]	18m	18m	23m			
2[a]	23m	23m	30m			
3	30m	30m	30m	60m*(45m)*		
4			45m	60m*(45m)*	60m*(45m)*	60m
a.	The width of a precision approach runway should not be less than 30m where the code number is 1 or 2 *(Note figures in italics are the ICAO values)*					

SLOPE ON RUNWAYS

3.1.17 SIGHT DISTANCE

3.1.17 ***ICAO sub-section. 3.1.17*** *recommends that, where slope changes cannot be avoided, they should be such that there will be an unobstructed line of sight from:*

any point 3m above a runway to all other points 3m above the runway within a distance of at least half the length of the runway where the code letter is C, D, E or F;

any point 2m above a runway to all other points 2m above the runway within a distance of at least half the length of the runway where the code letter is B; and

any point 1.5m above a runway to all other points 1.5m above the runway within a distance of at least half the length of the runway where the code letter is A.

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

Pilots must be assured that the full length of the runway is clear. One method of achieving this, at least under conditions of good visibility, is to establish runway sight distance criteria to provide a direct line-of-sight down the entire length of the runway unobstructed by undulations in the runway profile. The numerical values chosen in the following policy are considered to be more representative of the pilots' eye-height for aeroplanes associated with the different runway categories.

POL-STAT 1985
[Reaffirmed 2013]

Thus, para. 3.1.17 should be amended to read:

"3.1.17 Where slope changes cannot be avoided, they shall be such that there will be an unobstructed line of sight from:

- Any point 3m (10 ft) above a runway to all other points 3m (10 ft) above the runway within a distance of the full length of the runway where the Code letter is C, D, E or F;

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- Any point 1.5m (5 ft) above a runway to all other points 1.5m (5ft) above the runway within a distance of the full length of the runway where the Code letter is A or B."

3.1.21 STRENGTH OF RUNWAYS

3.1.21 ***ICAO para. 3.1.21*** *recommends that a runway should be capable of withstanding the traffic of aeroplanes the runway is intended to serve.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that para. 3.1.21 in the ICAO text should be upgraded to be a standard and that the same should apply to runway shoulders and taxiways.

POL-STAT 1985 [REAFFIRMED 2017]

"3.1.21 All aerodrome surfaces in operational use by aeroplanes shall possess sufficient strength to withstand the static and dynamic loads of all aircraft they are intended to serve."

Surface of Runways

ICAO ANNEX 14 7TH EDITION

3.1.23 ***ICAO para 3.1.23*** *states a paved runway shall be so constructed or resurfaced as to provide surface friction characteristics at or above the minimum friction level set by the State.*

IFALPA POLICY

The requirements of this provision should be extended to include any markings on the runway and the following Note should be modified as follows:

POL-STAT 2001 [REAFFIRMED 2017]

"A paved runway and any markings thereon should be so constructed or resurfaced so as to provide surface friction characteristics at or a above the minimum friction level set by the State.".

RUNWAY SURVEYS AND IMPROVEMENT PROGRAMMES

Harsh micro-textured surfaces have been shown to permit the highest penetration of water and thereby provide a high value of braking coefficient of friction. As the surface wears, the texture becomes smoother and its capacity to absorb water deteriorates with a resultant reduction in braking coefficient of friction. Accordingly, IFALPA considers that there should be a requirement to determine the state of wear of the runway texture through a system of periodical grading and that this information should be published so that it is available to the pilot at all times.

Accordingly, a new paragraph should be added to this Section as follows:

POL-STAT 1984 [REAFFIRMED 2011]

"3.1.x A survey of existing runways should be made to identify those which give rise to poor braking action or directional control problems when contaminated. For those runways so identified, action should be taken through the use of suitable techniques for improving the drainage and friction characteristics."

STATUS AND DATE

PROVISION OF WATER OR SLUSH

It has been demonstrated in tests conducted by NASA that transverse grooving results in a measurable increase of the friction coefficient on a flooded runway. The NASA tests proved conclusively that, even on a flooded runway, grooving improves wheel spin-up, gives increased directional control and provides braking capability approaching that of a dry runway. Although Annex 14, Vol 1 gives some guidance on grooving, there is no requirement or recommendation for runway surfaces to be grooved.

Accordingly, the following para. should be added:

"3.1.z To promote rapid drainage and increase friction characteristics, runway surfaces should be both cambered and textured by either grooving or porous friction coating." — **POL-STAT 2001 [REAFFIRMED 2011]**

3.2 RUNWAY SHOULDERS

3.2 GENERAL

3.2.1 ***ICAO para 3.2.1*** *recommends that runway shoulders should be provided for a runway where the code letter is D or E, and the runway width is less than 60m.* — ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

IFALPA considers that, in all cases, runway shoulders should be provided where the runway width is less than 60 m. Para 3.2.1 should therefore be amended by the deletion of the qualification "where the code letter is D or E". — **POL-STAT 1985** [Reaffirmed 2013]

See IFALPA Annex 14, para 3.1.9 for policy related to the minimum widths of runways.

3.2.3 WIDTH OF RUNWAY SHOULDERS

3.2.3 **Recommendation.—** *The runway shoulders should extend symmetrically on each side of the runway so that the overall width of the runway and its shoulders is not less than:*
— 60 m where the code letter is D or E; and
— 75 m where the code letter is F — ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

This Recommended Practice requires upgrading to the status of a Standard, and the following text should be added: — **POL-STAT 1994** [Reaffirmed 2013]

"except in the case of runways intended to be used by aircraft of codes D, E and F where the overall width shall be 90 m."

STATUS AND DATE

3.2.5 STRENGTH OF RUNWAY SHOULDERS

3.2.5 ***ICAO para 3.2.5*** *recommends that a runway shoulder should be prepared or constructed so as to be capable, in the event of an aeroplane running off the runway, of supporting the aeroplane without inducing structural damage to the aeroplane and of supporting ground vehicles which may operate on the shoulder.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

In this connection, IFALPA considers that a shoulder should be stabilised, compacted and hard-surfaced and possess a bearing capacity sufficient to withstand the static and dynamic loads of all aircraft they are intended to serve.

POL-STAT 1985 [Reaffirmed 2013]

Where operational factors necessitate a 180º turn on the runway, the shoulder should possess a bearing capacity sufficient to withstand the maximum dynamic load of the largest aircraft likely to be required to perform this manoeuvre.

3.3 RUNWAY TURN PADS

SLOPES ON RUNWAY TURN PADS

ICAO ANNEX 14 7TH EDITION

3.3.8 *ICAO para 3.3.8 recommends that the longitudinal and transverse slopes on a runway turn pad should be sufficient to prevent the accumulation of water on the surface and facilitate rapid drainage of surface water. The slopes should be the same as those on the adjacent runway pavement surface.*

IFALPA POLICY

IFALPA considers that this Recommended Practice should be upgraded to a Standard, changing "should" to "shall".

POL-STAT 2012

STRENGTH OF RUNWAY TURN PADS

ICAO ANNEX 14 7TH EDITION

3.3.9 ICAO Para 3.3.9 *Recommends that the strength of a runway turn pad should be at least equal to that of the adjoining runway which it serves, due consideration being given to the fact that the turn pad will be subjected to slow-moving traffic making hard turns and consequent higher stresses on the pavement.*

Note.— Where a runway turn pad is provided with flexible pavement, the surface would need to be capable of withstanding the horizontal shear forces exerted by the main landing gear tires during turning manoeuvres.

IFALPA POLICY

IFALPA considers that this Recommended Practice should be upgraded to a Standard, changing "should" to "shall".

POL-STAT 2012

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SURFACE OF RUNWAY TURN PADS — ***ICAO ANNEX 14 7TH EDITION***

3.3.11 ICAO Para 3.3.11 Recommends that the surface of a runway turn pad should be so constructed or resurfaced as to provide surface friction characteristics at least equal to that of the adjoining runway.

IFALPA POLICY

IFALPA considers that this Recommended Practice should be upgraded to a Standard, changing "should" to "shall". — **POL-STAT 2012**

SHOULDERS FOR RUNWAY TURN PADS — **ICAO ANNEX 14 7TH EDITION**

3.3.12 ICAO Para 3.3.12 Recommends that the runway turn pads should be provided with shoulders of such width as is necessary to prevent surface erosion by the jet blast of the most demanding aeroplane for which the turn pad is intended and any possible foreign object damage to the aeroplane engines.

Note.— As a minimum, the width of the shoulders would need to cover the outer engine of the most demanding aeroplane and thus may be wider than the associated runway shoulders.

3.3.13 ICAO Para 3.3.13 Recommends that the strength of runway turn pad shoulders should be capable of withstanding the occasional passage of the aeroplane it is designed to serve without inducing structural damage to the aeroplane and to the supporting ground vehicles that may operate on the shoulder.

IFALPA POLICY

IFALPA considers that the Recommended Practice in 3.3.12 and 3.3.13 should be upgraded to a Standard, changing "should" to "shall". — **POL-STAT 2012**

3.4 RUNWAY STRIPS

WIDTH OF RUNWAY STRIPS

3.4.5 ***ICAO para. 3.4.5*** *recommends that a strip including a non-instrument runway should extend on each side of the centre line of the runway and its extended centre line throughout the length of the strip, to a distance of at least:* — ***ICAO ANNEX 14 7TH EDITION***

75m where the code number is 3 or 4;
40m where the code number is 2; and
30m where the code number is 1

IFALPA POLICY

IFALPA recommends that the paragraph 3.4.5 be changed because the intent of ICAO Annex 14, paras 3.4.3 and 3.4.4 equally apply to para. 3.4.5, namely to protect aircraft over flying the runway during a missed approach and aircraft involved in runway side run-off incidents or accidents. — **POL-STAT 1999 [REAFFIRMED 2011]**

STATUS AND DATE

IFALPA considers that the recommended figure of 75m for code numbers 3 or 4 is inadequate and that this should be 150m (500 ft.). The equivalent widths in feet should also be shown. The following amendment is required:

DELETE the figure of 75m in para. 3.4.5 and SUBSTITUTE 150m (500 ft.). ADD after 40m, (130 ft.) and after 30m, (100 ft.).

3.4.14 LONGITUDINAL SLOPE CHANGES

3.4.14 ***ICAO sub-section. 3.3.14*** *recommends that slope changes on that portion of a strip to be graded should be as gradual as practicable and abrupt changes or sudden reversals of slopes avoided.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

A new sub-paragraph needs to be added to 3.4.13, the intent of which is to protect aeroplanes making auto-coupled approaches and automatic landings by restricting the permissible slope changes in the stipulated area immediately prior to the threshold. This is necessary because these aeroplanes are fitted with a radio altimeter for final height and flare guidance and when the aeroplane is over the terrain in this area the radio altimeter will begin to provide information to the automatic pilot for auto-flare.

POL-STAT 1999 (REAFFIRMED 2009)

This new sub-paragraph should read:

> "3.4.13.x In order to accommodate aeroplanes making auto-coupled approaches and automatic landings (irrespective of weather conditions), slope changes should be avoided or kept to a minimum on an area that is symmetrical about the extended runway centre-line at least 60m (200 ft) wide and 300m (1000 ft) long before the threshold of a precision approach runway Category I, II or III. Where slope changes cannot be avoided, the rate of change between two consecutive slopes should not exceed 0.8 per cent per 30m (100 ft)."

STRENGTH OF RUNWAY STRIPS

IFALPA recommends that the following paragraph should be added following paragraph 3.4.18:

POL-STAT 2002 (REAFFIRMED 2009)

DRAINAGE DITCHES IN RUNWAY STRIPS

3.4.x Open drainage ditches shall not be located within the graded portion of the aerodrome runway strip. Where drainage ditches are located at the edge of the graded area, they shall be covered in order to preclude structural damage in the event an aeroplane overruns the ditch.

STATUS AND DATE

3.5 RUNWAY END SAFETY AREAS

DIMENSIONS OF RUNWAY END SAFETY AREAS

3.5.3 ***ICAO para 3.5.3 states that*** *A runway end safety area shall extend from the end of a runway strip to a distance of at least 90 m where:* ***ICAO ANNEX 14 7TH EDITION***

— the code number is 3 or 4; and

— the code number is 1 or 2 and the runway is an instrument one.

Note.— Guidance on runway end safety areas is given in Attachment A, Section 10.

IFALPA POLICY

IFALPA believes that the following Notes should be added to the ICAO Standard:

Note 1: At some current airports it is not physically possible to provide a 300m long overrun area (critical for rescue and firefighting). Where this is the case an acceptable level of safety may be provided by a combination of conventional overrun area and an Arresting System (AS). **POL STAT 2003** [Reaffirmed 2013]

Note 2: When an arresting system is constructed in compliance with Note 1 the combined overrun area shall cater for the largest aircraft which is planned to use that runway. **POL STAT 2003** [Reaffirmed 2013]

3.5.4 **Recommendation.—** *A runway end safety area should, as far as practicable, extend from the end of a runway strip to a distance of at least:* ***ICAO ANNEX 14 7TH EDITION***

— 240 m where the code number is 3 or 4; or a reduced length when an arresting system is installed;

— 120 m where the code number is 1 or 2 and the runway is an instrument one; or a reduced length when an arresting system is installed; and

— 30 m where the code number is 1 or 2 and the runway is a non-instrument one.

IFALPA POLICY

A runway end safety area shall extend from the end of a runway strip to a distance of at least: **POL STAT 2006** [Reaffirmed 2016]

— 240 m where the code number is 3 or 4 ; and

— 120 m where the code number is 1 or 2.

A runway end safety area should extend from the end of a runway strip to a distance of at least:

— 240 m where the code number is 1 or 2

An alternative means of compliance is the installation of an arrestor bed whose performance allows at least the equivalent level of safety as the recommended RESA. In any event access to the Critical Rescue and Fire Fighting Access Area must be assured.

STATUS AND DATE

OBJECTS ON RUNWAY END SAFETY AREAS

3.5.7 ***ICAO para 3.5.7*** *recommends that an object situated on a runway end safety area, which may endanger aeroplanes should be regarded as an obstacle and should, as far as practicable, be removed.* — ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

This text requires amplification to include the qualification that such objects should also not impede the rapid access of emergency vehicles. The following amendment is required: — **POL-STAT 2003** [Reaffirmed 2013]

In Para 3.5.7 after the words "which may endanger aeroplanes" INSERT "or impede the rapid access of emergency vehicles, should be regarded as an obstacle. Objects within the Runway End Safety Area should be removed".

STRENGTH OF RUNWAY END SAFETY AREAS

3.5.12 **Recommendation—** *A runway end safety area should be so prepared or constructed as to reduce the risk of damage to an aeroplane undershooting or overrunning the runway, enhance aeroplane deceleration and facilitate the movement of rescue and fire fighting vehicles as required in 9.2.30 to 9.2.32.* — ***ICAO ANNEX 14 7TH EDITION***

Note— Guidance on strength of a runway end safety area is given in the Aerodrome Design Manual, *Part 1*.

IFALPA POLICY

This text requires re-wording to incorporate the need to reduce the risk of injury to persons on board, to enhance stopping the movement of the aeroplane and to facilitate the rapid movement of rescue and fire fighting vehicles. The following amendment is required: — **POL-STAT 1980** [Reaffirmed 2013]

"3.5.11 A runway end safety area should be so prepared and constructed as to reduce the risk of injury to persons on board an aeroplane undershooting or overrunning the runway, enhance stopping the movement of the aeroplane, and facilitate the rapid movement of rescue and fire fighting vehicles."

IFALPA POLICY

A further new paragraph should be added regarding drainage ditches at runway end safety areas, as follows: — **POL-STAT 2002 [REAFFIRMED 2012]**

DRAINAGE DITCHES IN RUNWAY END SAFETY AREAS

"3.5.11.y Open drainage ditches shall not be located within the runway end safety areas. Where drainage ditches are located at the edge of the runway end safety areas graded area, they shall be covered in order to preclude structural damage in the event an aeroplane overruns the ditch."

STATUS AND DATE

3.6 CLEARWAYS

PURPOSE OF CLEARWAY

3.6 ***ICAO Introductory Note to Section 3.6*** *states that the inclusion of detailed specifications for clearways in this section is not intended to imply that a clearway has to be provided. Attachment A, Section 2 provides information on the use of clearways.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

This text requires amendment to make it clear that, whilst the implication is not intended that a clearway should be provided for the purpose of increasing the take-off weight, clearways should be provided wherever possible solely for safety purposes. The following amendment is required:

POL-STAT 1976 (Reaffirmed 2011)

AMEND the first sentence of the Introductory Note by DELETING the words "has to be provided" and ADD "should be provided for the purpose of increasing the take-off weight. Clearways should be provided wherever possible solely for safety purposes."

SLOPES ON CLEARWAYS

3.6.5 ***ICAO para 3.6.5*** *recommends that abrupt upward changes in slope should be avoided when the slope on the ground in a clearway is relatively small or when the mean slope is upward. In such situations, in that portion of the clearway within a distance of 22.5m or half the runway width whichever is greater on each side of the extended centre line, the slopes, slope changes and the transition from runway to clearway should generally conform with those of the runway with which the clearway is associated.*

ICAO ANNEX 14 7H EDITION

IFALPA POLICY

A new paragraph should be added to Section 3.6, after the existing para 3.6.5, reading as follows:

POL-STAT 1976 [Reaffirmed 2013]

> "3.6.5.1 The slope of a clearway should be measured and the data made available so that the effect of this slope can be taken into account for aeroplane performance purposes."

STATUS AND DATE

3.7 STOPWAYS

PURPOSE OF STOPWAYS

3.7 ***ICAO Introductory Note to Section 3.7*** *states that the inclusion of detailed specifications for stopways in this section is not intended to imply that a stopway has to be provided. Attachment A, Section 2 provides information on the use of stopways.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

Contrary to the practice of some States, IFALPA believes that stopways should not be taken into account for performance purposes. The reasons for this are:

POL-STAT 1975 (Reaffirmed 2011)

i) The braking coefficient cannot be satisfactorily measured; hence the accelerate-stop distance and the landing distance may not be conservative if they include stopway credit.

ii) The surface cannot be depended on (e.g. in the tropics it is common for the stopways to be of Laterite, which becomes unserviceable immediately after heavy rain).

Accordingly, the text of the Introductory Note requires amendment to make it clear that, whilst the implication is not intended that a stopway should be provided for the purpose of increasing the take-off or landing weight, where a stopway is provided it should be for the purpose of offering added aid for emergency use.

AMEND the first sentence of the Introductory Note by DELETING the words "has to be provided" and ADD "should be provided for the purpose of increasing the take-off or landing weight. Where provided, it should be for the purpose of offering added aid for emergency use."

3.9 TAXIWAYS

Use of runways as taxiways

POL-STAT 1985 [Reaffirmed 2013]

IFALPA does not approve of the practice of using runways as taxiways. The potential for error with possible disastrous consequences of such a practice is obvious. However, recognising that this practice is relatively common at a number of locations, IFALPA recommends the following guidelines:

i) Runways used permanently as taxiways shall be marked and lit in accordance with the standard specification for taxiways; and

ii) The aerodrome ground chart shall clearly identify runways, which may be used as taxiways.

In addition it must be recognised that particular dangers exist when a runway parallel to an active runway is used as a taxiway. This practice should be actively discouraged particularly when operations are taking place in IMC.

POL-STAT 2004 [Reaffirmed 2015]

STATUS AND DATE

3.9.2 ***ICAO para. 3.9.2*** *recommends that sufficient entrance and exit taxiways for a runway should be provided to expedite the movement of aeroplanes to and from the runway and provisions of rapid exit taxiways considered when traffic volumes are high.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

The following text should be added to 3.9.2:

3.9.2.x	Taxiway runway crossing shall be prevented by airport design, a physical barrier or the use of a stop bar.	**POL-STAT 2003** [Reaffirmed 2013]
3.9.2.xx	The taxiway system should be designed to minimize restriction to aircraft movement to and from the runways and apron areas. It should be capable of maintaining a smooth, continuous flow of aircraft ground traffic at the maximum practical speed with a minimum of acceleration or deceleration.	**POL-STAT 2006** [Reaffirmed 2016]
3.9.2.y	Entrance Taxiways for a runway shall be restricted to those required for lining up for take off and shall be perpendicular to that runway.	**POL-STAT 2006** [Reaffirmed 2016]
3.9.2.z	Taxiway crossings of runways and other taxiways should be avoided whenever possible.	**POL-STAT 2006** [Reaffirmed 2016]

STATUS AND DATE

MAIN WHEEL TO TAXIWAY EDGE CONCEPT

ICAO ANNEX 14 7TH EDITION

3.9.3. ***ICAO para. 3.9.3*** *states that the design of a taxiway shall be such that, when the cockpit of the aeroplane for which the taxiway is intended remains over the taxiway centre line markings, the clearance distance between the outer main wheel of the aeroplane and the edge of the taxiway shall not be less than that given by the following tabulation:*

Code letter	***Clearance***
A	*1.5m*
B	*2.25m*
C	*3m if the taxiway is intended to be used by aeroplanes with a wheel base less than 18m.*
	4.5m if the taxiway is intended to be used by aeroplanes with a wheel base equal to or greater than 18m.
D	*4.5m*
E	*4.5m*
F	*4.5m*

Note 1.- *Wheel base means the distance from the nose gear to the geometric centre of the main gear.*

Note 2.- *Where the code letter is F and the traffic density is high, a wheel to edge clearance greater than 4.5m may be provided to permit higher taxiing speeds.*

IFALPA POLICY

POL-STAT 2014

The following amendment to the tabulation is to make the clearance distances compatible with the IFALPA requirements for minimum taxiway widths (see para. 3.9.4). The revised clearances are based on an outer main gear span of 14 m on a code letter E or D taxiway, and 16m on code letter F taxiway. The clearance for code letters C, B and A taxiways is increased in the same proportion. These changes are shown in the following tabulation:

Code letter	**Clearance**	
A	Delete 1.5 m and substitute 2.75 m (9 ft.)	
B	Delete 2.25 m and substitute 4 m (13 ft.)	
C	Delete 3 m and substitute 5.5 m (17.5 ft.), inserting (58.5 ft.) after "18 m".	
	Delete 4.5 m and substitute 8 m (26 ft), inserting (58.5 ft) after "18 m".	
D	Delete 4.5 m and substitute 8 m (26 ft.).	**POL-STAT 2014**
E	Delete 4.5 m and substitute 8 m (26 ft.).	
F	Delete 4.5 m and substitute 8 m (26 ft.).	**POL-STAT 2014**

STATUS AND DATE

WIDTH OF TAXIWAYS

3.9.4 ***ICAO para. 3.9.5*** *recommends that a straight portion of a taxiway should have a width of not less than that given by the following tabulation:*

ICAO ANNEX 14 7TH EDITION

Code letter	*Taxiway width*
A	*7.5m*
B	*10.5m*
C	*15m if the taxiway is intended to be used by aeroplanes with a wheel base of less than 18m.*
	18m if the taxiway is intended to be used by aeroplanes with a wheel base equal to or greater than 18m.
D	*18m if the taxiway is intended to be used by aeroplanes with an outer main gear wheel span of less than 9m.*
	23m if the taxiway is intended to be used by aeroplanes with an outer main gear wheel span equal to or greater than 9m.
E	*23m*
F	*25m*

IFALPA POLICY

POL-STAT 1994 [REAFFIRMED 2011]

The values in the following amendment to the tabulation in para. 3.9.5 have been calculated by adding twice the minimum clearances in 3.9.3 to the highest value of main gear span for each Code letter in the Aerodrome Reference Code. The table has been complicated by the introduction of wheel-base although there does not appear to be a current aircraft type in Code C with a wheel-base in excess of 18m. In order to follow the ICAO table as closely as possible this consideration is included in the proposed IFALPA table, as follows:

"Code letter	Taxi width
A	Delete 7.5 m and substitute 10 m (33 ft.)
B	Delete 10.5 m and substitute 14 m (46 ft.).
C	Delete 15 m and substitute 20 m (66 ft.), inserting (58.5 ft.) after "18 m".
	Delete 18 m and substitute 30 m (100 ft.), inserting (58.5 ft.) after "18 m"
D	Delete 18 m and substitute 25 m (83 ft.), inserting after "9 m" the words "(29.25 ft.) and wheel base less than 18 m 7(58.5 ft)".
	Delete 23 m and substitute 30 (100 ft.), inserting (58.5 ft.) after "18 m".
E	Delete 23 m and substitute 30 m (100 ft.)
F	30 m"

STATUS AND DATE

As it is essential that the provisions of para. 3.9.5 be complied at aerodromes where takeoffs and/or landings are conducted in visibility or RVR conditions of 500 metres or less, IFALPA considers that the text, as amended, should be upgraded to the status of a Standard, changing "should" to "shall".

TAXIWAY MINIMUM SEPARATION DISTANCES

Table 3-1 ***Table 3-1 in the ICAO text*** *sets out the recommended taxiway minimum separation distances to be applied.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA policy related to the minimum width of runways and taxiways (paras. 3.1.9 and 3.9.5 respectively) requires ICAO Table 3-1 to be amended as follows (ICAO numbers shown shaded.)

POL-STAT 1994 [REAFFIRMED 2011]

STATUS AND DATE

TABLE 3-1

Taxiway Minimum Separation Distances

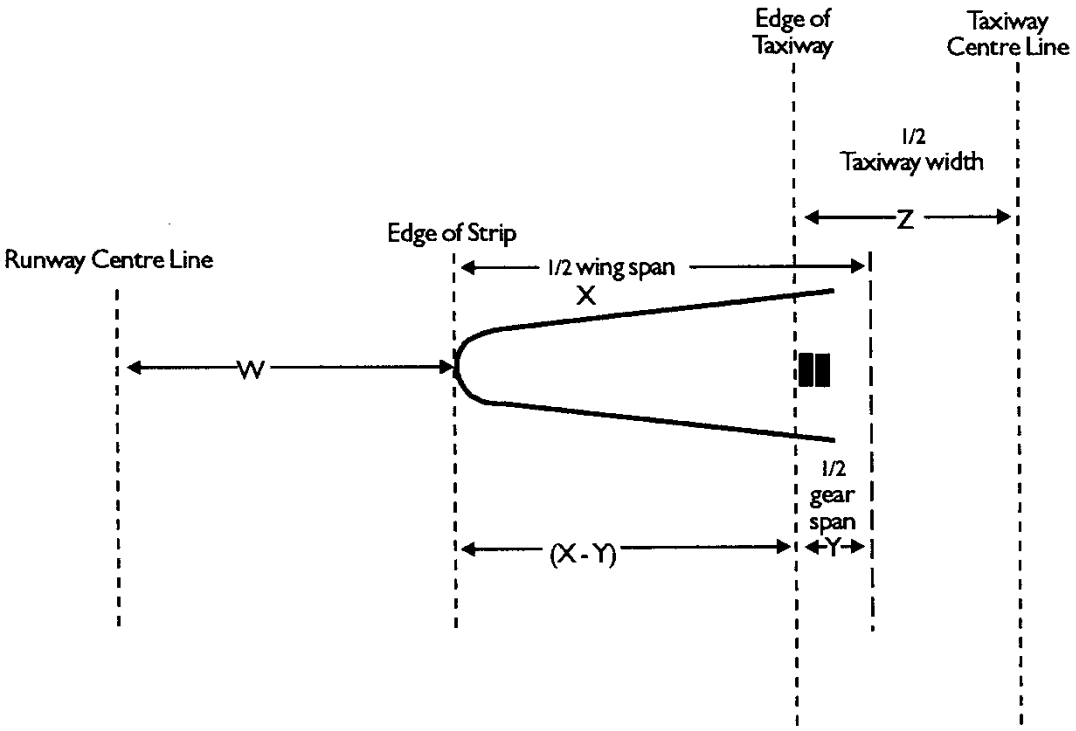
	Distance between Taxiway Centre Line Runway Centre Line								Taxiway Centre Line to Taxiway Centre Line	Taxiway and Apron Taxiway Centre Line to Object	Aircraft Stand Taxi Lane Centre Line to Object
	Instrument Runway				Other Runways						
(1)	(2)				(3)				(4)	(5)	(6)
Code Number Code Letter	1	2	3	4	1	2	3	4			
A (metres)	*82.5* 85.25	*82.5* 82.25			*37.5* 40.25	*47.5* 50.25			*23.75*	*16.25*	*12* 13.25
B (metres)	*87* 91	*87* 91			*42* 46	*52* 56			*33.5* 35	*21.5*	*16.5* 19
C (metres)			*168* 173.5				*93* 173.5		*44* 51.5	*26* 31	*24.5* 28
D (metres)			*176* 184	*176* 184			*101* 184	*101* 184	*66.5* 75.5	*40.5* 46	*36* 41.5
E (metres)				*182.5* 190.5				*107.5* 190.5	*80* 88.5	*47.5* 52.5	*42.5* 48
F (metres)				*190* 201				*115* 201	*97.5* 112.5	*57.5* 63	*50.5* 59.5

The above IFALPA amendments to Table 3-1 are derived as follows:

POL-STAT 1994 [REAFFIRMED 2011]

COLUMNS (2) AND (3)

These numbers are based on allowing the largest aircraft in each Code letter i.e. longest wing span and main gear span) to be situated with its outer main gear wheel located on the edge of the widest taxiway for its Code (as contained in proposed Code amended by IFALPA) and with its wing tip located at the outer edge of the runway strip (as contained in Annex 14 and amended by IFALPA in the case of non-instrument runway).



Minimum Clearance = W + (X - Y) + Z

Where W = lateral extension of strip each side of runway centre line
X = ½ maximum wing span for Code letter
Y = ½ maximum gear span for Code letter
Z = ½ taxiway width for Code letter

COLUMN (4)

In this case the calculations are based on the formula

Distance = U + V + W

Where U = wing span, i.e. two aircraft of equal size passing
V = twice maximum lateral deviation allowed in Annex
W = increment arbitrarily calculated to allow clearance as follows:

Code A and B = 3 m; Code C = 4.5 m;
Code D and E = 7.5 m; Code F = 10.5 m

Note: This increment should be used to calculate the minimum separation distance between taxiway centre line and taxiway centre line.

COLUMNS (5) AND (6)

In these cases the calculations are based on the formula:
Distance = R + S + T

STATUS AND DATE

Where R = ½ wing span (as in all cases separation is from a fixed object)
S = maximum lateral deviation
T = increment as before, as follows:

Taxiways and objects and apron taxiway and objects:
Code A = 4.5m; Code B = 5.25m;

Code C = 7.5m; Codes D and E = 12m;

Code F = 12m

Note: This increment should be used to calculate the minimum separation distance between taxiway and apron taxiway centre line to object.

Aircraft stand taxi lanes and object:

Codes A and B = 3m; Code - 4.5m

Codes D and E = 7.5m; Code F = 8.5m

Note: This increment should be used to calculate the minimum separation distance between aircraft stand taxi lane to object.

TAXIWAY MINIMUM SEPARATION DISTANCES

3.9.7 ***ICAO para 3.9.7*** *recommends that the separation distance between the centre line of a taxiway and the centre line of a runway, the centre line of a parallel taxiway or an object should not be less than the appropriate dimension specified in Table 3.1, except that it may be permissible to operate with lower separation distances at an existing aerodrome if an aeronautical study indicates that such lower separation distances would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

3.9.7.1 A new paragraph and Note after the existing para 3.9.8 are required, reading as follows:

POL-STAT 2004 [REAFFIRMED 2011]

"3.9.7.1 The distance between a parallel taxiway and an operational runway should be sufficient to ensure that any aircraft positioned on the taxiway does not infringe the ILS Obstacle Assessment Surface.

Note: In cases where the aircraft on the taxiway does penetrate the Obstacle Assessment Surface, the aircraft should be regarded as an obstacle and as such taken into account when calculating the Obstacle Clearance Altitude / Height (OCA/H)."

See ICAO PANS-OPS, Volume II, Part III, Section 2.1 (ILS Approach Procedures) and Attachment A to Part III (ILS Obstacle Clearance) for background information concerning the above procedure.

STATUS AND DATE

STRENGTH OF TAXIWAYS

3.9.12 ***ICAO para. 3.9.12*** *recommends that the strength of a taxiway should be at least equal to that of the runway it serves, due consideration being given to the fact that a taxiway will be subjected to a greater density of traffic and, as a result of slow moving and stationary aeroplanes, to higher stresses than the runway it serves.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that this Recommended Practice should be upgraded to Standard status, changing "should" by "shall".

POL-STAT 1985 [Reaffirmed 2013]

RAPID EXIT TAXIWAYS

3.9.15-18 ***ICAO paras. 3.9.15 - 3.9.18****, set out the recommended specifications for such taxiways.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

3.9.x Rapid exit taxiways shall be constructed in such a way that crossing the runway via a rapid exit taxiway is not possible.

POL-STAT 2003 [Reaffirmed 2013]

TAXIWAYS ON BRIDGES

3.9.19 ***ICAO para. 3.9.19*** *requires that the width of that portion of a taxiway bridge capable of supporting aeroplanes, as measured perpendicularly to the taxiway centre line, shall be not less than the width of the graded area of the strip provided for that taxiway, unless a proven method of lateral restraint is provided which shall not be hazardous for aeroplanes for which the taxiway is intended.*

ICAO ANNEX 14 7TH EDITION

3.9.20 ***ICAO para 3.9.20*** *to this provision recommends that access should be provided to allow rescue and fire fighting vehicles to intervene in both directions within the specified response time to the largest aeroplane for which the taxiway bridge is intended.*

The associated Note states that if aeroplane engines overhang the bridge structure, protection of adjacent areas below the bridge from engine blast may be required.

ICAO ANNEX 14 5TH EDITION

IFALPA POLICY

IFALPA considers that the text of para. 3.9.19, 3.9.20 and the accompanying Note, should be deleted and be replaced with the following:

POL-STAT 1985 [Reaffirmed 2013]

3.9.19: All taxiway bridges shall have a width at least equal to that of the taxiway plus the width of the shoulder. Additional width shall be provided in the form of a traffic lane to ensure the simultaneous use of the bridge by aircraft and emergency vehicles.

STATUS AND DATE

3.9.22 ***ICAO para. 3.9.22*** *recommends that a bridge should be constructed on a straight section of the taxiway with a straight section on both ends of the bridge to facilitate the alignment of aeroplanes approaching the bridge.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

This Recommended Practice should be upgraded to the status of a Standard, changing "should" to "shall".

POL-STAT 1985 [Reaffirmed 2013]

Two new paragraphs should be added to this sub-section, reading as follows:

POL-STAT 1985 [Reaffirmed 2013]

3.9.22x Where longitudinal slopes cannot be avoided, the gradient should not exceed 0.75%.

3.9.22y The surface of a bridge should be so constructed as to provide good friction characteristics under all weather conditions or in any operational environment

3.10 TAXIWAY SHOULDERS

DIMENSIONS OF TAXIWAY SHOULDERS

3.10.1 ***ICAO para. 3.10.1*** *recommends that straight portions of a taxiway where the code letter is C, D, E or F should be provided with shoulders which extend symmetrically on each side of the taxiway so that the overall width of the taxiway and its shoulders on straight portions is not less than:*

60m where the code letter is F;
44m where the code letter is E;
38m where the code letter is D; and
25m where the code letter is C.

On taxiway curves and on junctions or intersections where increased pavement is provided, the shoulder width should be not less than that on the adjacent straight portions of the taxiway.

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

The ICAO requirement for an overall width of taxiway plus shoulders of 44 metres (for code E) is only just sufficient to accommodate the engine span of a B-747 (42.4m). For code D (38m), the ICAO requirement is not sufficient for a B-747. The amended dimensions in the following policy are considered to be much more realistic in terms of the need to cover the engine spans of all aircraft likely to use the respective taxiways and thus avoid the danger of damage to the engines caused by ingestion of surface debris.

Accordingly, para 3.10.1 should be amended by the deletion of the words “where the code letter is C, D or E”, the deletion of the tabulation and its replacement with the following. In addition to the above requirement that the overall width of taxiway plus shoulder for Code E should be 60m, the Federation believes that, to accommodate the introduction of new large aircraft, the IFALPA tabulation should be extended to include the requirement for a combined taxiway and shoulder width of 75m for Code Letter F.

POL-STAT 1994 [Reaffirmed 2013]

STATUS AND DATE

Accordingly the tabulation should be amended to read as follows:

75m where the code letter is F;
60 m where the code letter is E;
60 m where the code letter is D;
53 m where the code letter is C;
39 m where the code letter is B; and
34 m where the code letter is A."

IFALPA POLICY

A new sub-section should be added to Section 3.10, reading as follows:

POL-STAT 1985
[Reaffirmed 2013]

"STRENGTH OF TAXIWAY SHOULDERS

3.10.x A taxiway shoulder should be prepared or constructed so as to be capable of supporting any aeroplane which the taxiway is intended to serve without incurring structural damage to the aeroplane in the event of it accidentally running off the taxiway."

3.11 TAXIWAY STRIPS

WIDTH OF TAXIWAY STRIPS

3.11.2 ***ICAO para. 3.11.2*** *recommends that a taxiway strip should extend symmetrically on each side of the centre line of the taxiway throughout the length of the taxiway to at least the distance from the centre line given in Table 3-1, column 11.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

ICAO paragraph 3.11.2 refers to Table 3-1, and IFALPA policy related to Table 3-1 provides amended dimensions appropriate to the minimum separation distances between a taxiway centre line and objects.

A new sub-section should be added to Section 3.11, reading as follows:

POL-STAT 1985
[Reaffirmed 2013]

"STRENGTH OF TAXIWAY STRIPS

3.11.x A taxiway strip should be so prepared or constructed as to minimise hazards arising from differences in load bearing capacity to aeroplanes which the taxiway is intended to serve in the event of an aeroplane accidentally running off the taxiway."

IFALPA POLICY

A further new paragraph should be added regarding drainage ditches at taxiway strips, as follows:

POL-STAT 2002
(Reaffirmed 2012)

DRAINAGE DITCHES IN TAXIWAY STRIP

3.11.y Open drainage ditches shall not be located within the graded portion of the taxiway strip. Where drainage ditches are located at the edge of the graded area, they shall be covered in order to preclude structural damage in the event an aeroplane overruns the ditch."

STATUS AND DATE

3.12 HOLDING BAYS, RUNWAY-HOLDING, INTERMEDIATE AND ROAD-HOLDING POSITIONS

Location

3.12.6 ***ICAO para. 3.12.6*** *requires that the distance between a holding bay, runway holding position established as a taxiway/runway intersection or road-holding position and the centre line of a runway shall be in accordance with Table 3-2 and, in the case of a precision approach runway, such that a holding aircraft will not interfere with the operation of radio navigation aids.*

ICAO ANNEX 14 7TH EDITION

3.12.7 ***ICAO para. 3.12.7*** *recommends that at elevations greater than 700m (2300ft) the distance of 90 m specified in Table 3-2 for a precision approach runway code number 4 should be increased as follows:*

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a) up to an elevation of 2000m (6600 ft); 1m for every 100m (330 ft) in excess of 700m (2300 ft);

b) elevation in excess of 2000m (6600 ft) and up to 4000m (13320 ft); 13m plus 1.5m for every 100m (330 ft) in excess of 2000m (6600 ft); and

c) elevation in excess of 4000m (13320 ft) and up to 5000m (16650 ft); 43m plus 2m for every 100m (330 ft) in excess of 4000m (13320 ft).

3.12.8 ***ICAO para. 3.12.8*** *recommends that if a holding bay, runway holding position or road-holding position for a precision approach runway code number 4 is at a greater elevation compared to the threshold, the distance of 90m or 107.5m, as appropriate, specified in Table 3-2 should be further increased 5m for every metre the bay or position is higher than the threshold.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

POL-STAT 1999 [Reaffirmed 2013]

The increased distances from the runway centre line for the location of holding bays in the following amending text conform with IFALPA policy related to the widths of runway strips (see IFALPA Annex 14, para. 3.4.5). The taxiway holding position provided for all Operational Categories should be in such a position that the tail of the largest aeroplane is outside, or lies under, the Obstacle Assessment Surface. ICAO PANS-OPS specifies that the acceptable risk of collisions between an overshooting aeroplane and one parked at the holding point should not exceed 1 x 10^{-7}.

The dimensions in IFALPA para. 3.12.6 below exceed those of the ICAO criteria by a considerable margin, (except in unusual circumstances) even when the provisions of ICAO paragraphs 3.12.7 and 3.12.8 are applied. For example, if the elevation of the airport were 4000m (13320 ft), for a precision runway, the holding bay distance would be 90m plus 43m of the elevation correction (= 133m). If the holding bay were 1m higher than the threshold elevation, an additional 5m of clearance would be required to produce a total of 138m. The required IFALPA distance however, is 155m. The IFALPA distance would be greater in all but very unusual circumstances, that is very high elevations and at those high elevations where the holding bay is far above the threshold elevation. Therefore where the

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IFALPA holding bay distances are implemented, ICAO paragraphs 3.12.7 and 3.12.8 are irrelevant.
Accordingly, para. 3.12.6 of the ICAO text should be revised to read:

POL-STAT 1999
[Reaffirmed 2013]

"3.12.6 The distance between a holding bay or a taxi-holding position and the centre line of a runway shall be not less than:

a) 155 m where the runway code number is 3 or 4;

155 m where the runway code number is 2 and the runway is an instrument runway;

75 m where the runway code number is 2 and the runway is a non-instrument runway; and

40 m where the runway code number is 1.

b) Such that a holding aircraft will not infringe an obstacle limitation surface taking into account the largest aircraft which could operate into the aerodrome. Furthermore, such a holding aircraft shall present a collision risk of less than 1×10^{-7} (one in ten million) when the collision risk model is used; and

c) Such that a holding aircraft will not interfere with the operation of radio aids."

3.13 APRONS

CLEARANCE DISTANCES ON AIRCRAFT STANDS

ICAO ANNEX 14 7TH EDITION

3.13.6 ***ICAO para. 3.13.6*** *recommends that an aircraft stand should provide the following minimum clearances between an aircraft using the stand and any adjacent building, aircraft on another stand and other objects:*

Code Letter	*Clearance*
A	*3m*
B	*3m*
C	*4.5m*
D	*7.5m*
E	*7.5m*
F	*7.5m*

When special circumstances so warrant, these clearances may be reduced at a nose-in aircraft stand, where the code letter is D, E or F:

a) between the terminal, including any fixed passenger bridge, and the nose of an aircraft; and

b) over any portion of the stand provided with azimuth guidance by a visual docking guidance system.

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An appended Note states that on aprons, consideration also has to be given to the provision of service roads and to manoeuvring and storage area for ground equipment.

IFALPA POLICY

The present ICAO Recommended Practice should be upgraded to a Standard, subject to the change of clearance criterion to account for Code letter F as follows: **POL-STAT 1995** [Reaffirmed 2013]

Code Letter	Clearance
F	8.5m

Furthermore, sub-para. (b) should be deleted and a new Standard added to read as follows: **POL-STAT 1995** [Reaffirmed 2013]

"3.13.x When precise positioning of an aircraft on an aircraft stand is required to assure the clearances in 3.13.6, a visual docking guidance system shall be provided."

DE-ICING/ANTI-ICING FACILITIES

3.15.1 ***ICAO para 3.15.1*** *recommends that aeroplane de/anti-icing facilities should be provided at an aerodrome where icing conditions are expected to occur.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

DE-ICING/ANTI-ICING FACILITIES **POL-STAT 1993** [Reaffirmed 2013]

The whole of Para 3.15 should be upgraded to a standard and amended as follows:

3.15 DE-ICING/ANTI-ICING FACILITIES

3.15.1 At airports where icing conditions can be expected, de-icing/anti-icing facilities shall be provided."

3.15.2 ***ICAO para 3.15.2*** *recommends that de/anti-icing facilities should be provided either at aircraft stands or at specified remote areas along the taxiway leading to the runway meant for take-off, provided that adequate drainage arrangements for the collection and safe disposal of excess de/anti-icing fluids are available top prevent ground water contamination. The effect of volume of traffic and departure flow rates should also be considered.* ***ICAO ANNEX 14 7TH EDITION***

Appended Note 1 indicates that one of the primary factors influencing the location of a de/anti-icing facility is to ensure that the hold-over time of the ant-icing treatment is still in effect at the end of taxiing and when take-off clearance of the treated aeroplane is given.

Appended Note 2 indicates that remote facilities compensate for changing weather conditions when icing conditions or blowing snow are expected

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to occur along the taxi route taken by the aeroplane to the runway meant for take-off.

IFALPA POLICY

"3.15.2 De-icing/anti-icing facilities shall be located so that the time interval between the start of aircraft de/anti-icing and the start of take-off does not exceed the established holdover times of de/anti-icing fluids used. **POL-STAT 1993** [Reaffirmed 2013]

Note 1: Consideration must be given to, interalia, typical weather conditions, traffic volume and density, typical air traffic delays, airport configuration and expected taxi speeds under adverse conditions.

Note 2: To avoid exceeding the established holdover times of de/anti-icing fluids, locating de/anti-icing facilities in the vicinity of departure runway ends may be necessary at large airports with high traffic volume and density."

3.15.3 ***ICAO para. 3.15.3*** *recommends that the remote de/anti-icing facility should be located to be clear of the obstacle limitation surfaces specified in Chapter 4, not cause interference to the radio navigation and be clearly visible from the air traffic control tower for clearing the treated aeroplane.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

"3.15.3 De-icing/anti-icing facilities shall be located so that aircraft and ground equipment (fixed or mobile) shall not penetrate any obstacle clearance [Reaffirmed 2013]surface specified in Chapter 4 of the Annex." **POL-STAT 1993** [Reaffirmed 2003]

"3.15.x De-icing/anti-icing facilities shall be designed with proper drainage capabilities so that environmental concerns do not limit de-icing/anti-icing operations." **POL-STAT 1993** [Reaffirmed 2013]

Size and Number of de/anti-icing pads

3.15.5 ***ICAO para. 3.15.5*** *recommends the size of a de/anti-icing pad should be equal to the parking area required by the most demanding aeroplane in a given category with at least 3.8m clear paved area all-round the aeroplane for the movement of the de/anti-icing vehicles* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

"3.15.5 The size and number of de-icing/anti-icing facilities shall be appropriate to the type and volume of aircraft to be accommodated and the required design capacity of an airport's de-icing/anti-icing system." **POL-STAT 1993** [Reaffirmed 2013]

"3.15.y Operating procedures, using properly trained and authorised personnel, shall be established to ensure inspection of aircraft before take-off in order to verify the "Clean aircraft concept." **POL-STAT 1993** [Reaffirmed 2013]

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CHAPTER 4 - OBSTACLE RESTRICTION AND REMOVAL

4.1 OBSTACLE LIMITATION SURFACES

OUTER HORIZONTAL SURFACE

ICAO ANNEX 14 7TH EDITION

Note - ***ICAO Note*** *states that guidance on the need to provide an outer horizontal surface and its characteristics is contained in the Airport Services Manual, Part 6.*

IFALPA POLICY

POL-STAT 1984 [REAFFIRMED 2011]

The following definition of an outer horizontal surface is based on the text which appeared in earlier editions of ICAO Annex 14 but which was subsequently withdrawn following consideration of the subject by the 8th Air Navigation Conference.

As it is the practice of several States to ignore the outer horizontal surface, IFALPA considers that this section should be amended by ADDITION of the following definition to precede the existing Note:

> "Specified portion of a horizontal plane located above the environment of an aerodrome beyond the horizontal limits of the conical surface, where applicable. The surface establishes a level above which consideration should be given to the control of any new construction to facilitate practicable or efficient instrument approach procedures."

TAKE-OFF CLIMB SURFACE

ICAO ANNEX 14 7TH EDITION

4.1.25 ***ICAO para. 4.1.25*** *defines a take-off climb surface as an inclined plane or other specified surface beyond the end of a runway or clearway.*

IFALPA POLICY

POL-STAT 1984 [REAFFIRMED 2011]

This text requires amplification to read as follows:

"**4.1.25 DESCRIPTION – TAKE-OFF CLIMB SURFACE**

An inclined plane or other specified surface starting 60m (200 ft) beyond the upwind end of a runway or clearway when such is provided."

CHARACTERISTICS

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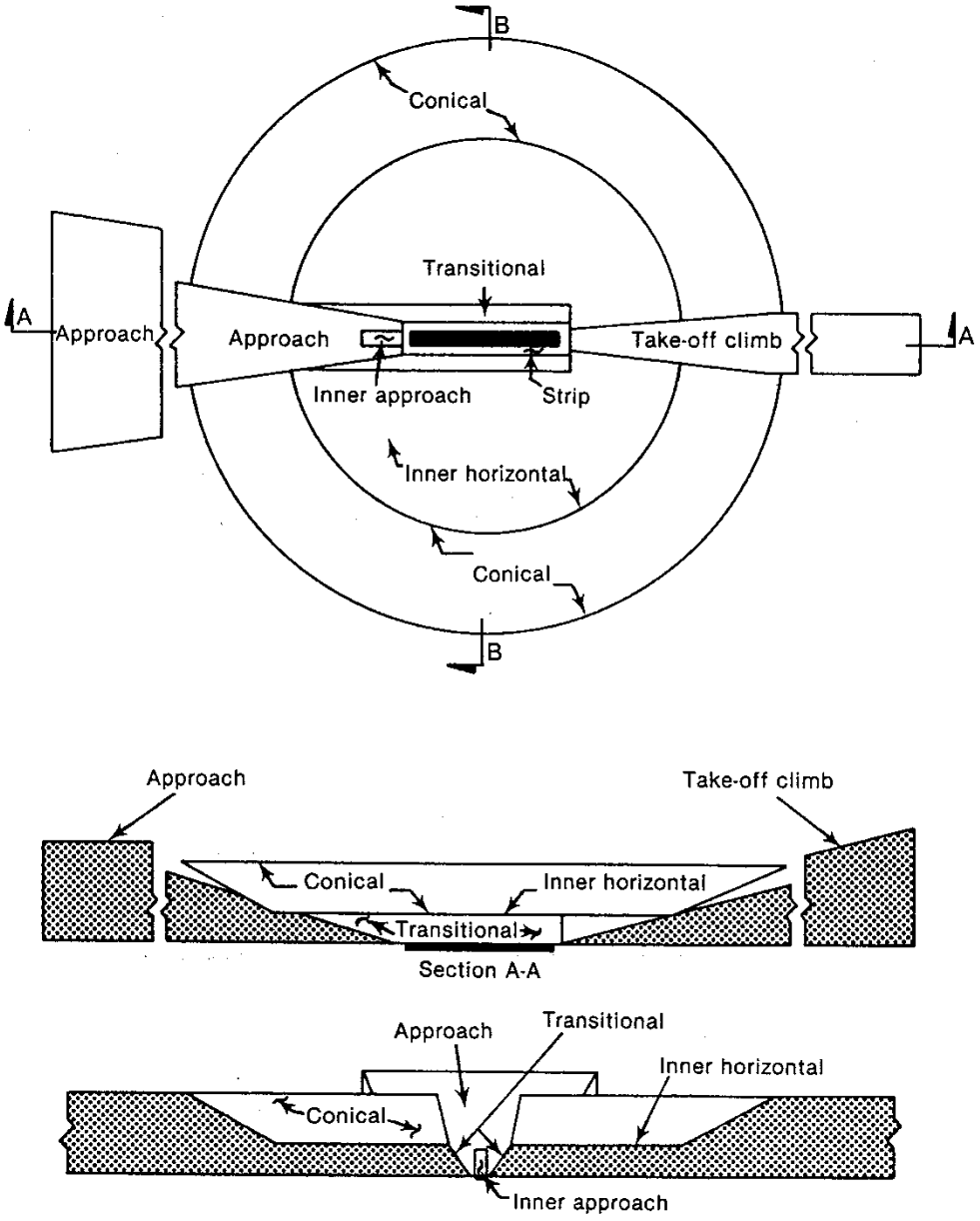
4.1.26 ***ICAO para. 4.1.26*** *states that the characteristics of a take-off climb surface shall comprise:*

a) an inner edge horizontal and perpendicular to the centre line of the runway and located either at a specified distance beyond the end of the runway or at the end of the clearway when such is provided and its length exceeds the specified distance.



See Figure 4-2 for inner transitional and balked landing obstacle limitation surfaces and Attachment B for a three-dimensional view

Figure 4-1 Obstacle limitation surfaces

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IFALPA POLICY

This sub-paragraph requires amendment to render it more specific, by deleting the words "located either at a specified distance beyond the end of the runway or at the end of the clearway ...." and replacing them with the words ".located either at 60m (200 ft) beyond the upwind end of the runway or the clearway ...". **POL-STAT 1984 [REAFFIRMED 2011]**

ELEVATION OF INNER EDGE

4.1.27 ***ICAO para. 4.1.27*** *states that the elevation of the inner edge shall be equal to the highest point on the runway extended centre line between the end of the runway and the inner edge, except that when a clearway is provided the elevation shall be equal to the highest point on the ground on the centre line of the clearway.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

This text requires amplification to read as follows: **POL-STAT 1984 [REAFFIRMED 2011]**

"4.1.27 The elevation of the inner edge shall be equal to the highest point on the extended runway centre line between 60m (200 ft) beyond the upwind end of the runway and the inner edge, except that when a clearway plus 60m (200 ft) is provided, the elevation shall be equal to the highest point on the ground on the centre line of the extended clearway."

4.2 OBSTACLE LIMITATION REQUIREMENTS

PRECISION APPROACH RUNWAYS

4.2.13 ***ICAO para. 4.2.13*** *states that the following obstacle limitation surfaces shall be established for a precision approach runway category I:* ***ICAO ANNEX 14 7TH EDITION***

conical surface;
inner horizontal surface;
approach surface; and
transitional surfaces.

4.2.14 ***ICAO para. 4.2.14*** *recommends that the following obstacle limitation surfaces should be established for a precision approach runway category 1:* ***ICAO ANNEX 14 7TH EDITION***

inner approach surface;
inner transitional surfaces; and
balked landing surface.

IFALPA POLICY

MLS procedures using the same criteria as for the Category I ILS are being developed by ICAO. The obstacle limitation surfaces will therefore be the same **POL-STAT 1999 [REAFFIRMED 2011]**

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for both ILS and MLS/GNSS/RNP approaches. Later, the MLS/GNSS/RNP procedures will be further developed to cover the equivalent of ILS Category II and Category III approaches and a new obstacle limitation surface will be required to provide protection during the complex lateral offset or curved approaches that will eventually become possible with advances in MLS/GNSS/RNP technology.

The list of obstacle limitation surfaces in para. 4.2.13 should therefore be expanded to include "lateral offset or curved approach surface (MLS/GNSS/RNP)" and the opening sentence amended by addition of the words "or MLS/GNSS/RNP" to follow ".... established for a precision approach runway Category I."

4.2.15 ***ICAO para. 4.2.15*** *states that the following obstacle limitation surfaces shall be established for a precision approach runway category II or III:* ***ICAO ANNEX 14 7TH EDITION***

conical surface;
inner horizontal surface;
approach surface and inner approach surface;
transitional surfaces;
inner transitional surfaces; and
balked landing surface.

IFALPA POLICY

Provision should be made in this paragraph for an MLS/GNSS/RNP category. The words "or MLS/GNSS/RNP " should be added after the words "category II or III", and a new sub-paragraph should be added reading: **POL-STAT 1999 [REAFFIRMED 2011]**

"b) on runways equipped with MLS, the conical surfaces shall be extended to cover the procedural measures adopted to govern the inbound flights of aeroplanes from the Final Transition Point (FTP)."

The following amendment is required :

AMEND para. 4.2.15 by deleting the words "... Category II or III" and substituting "...Category II, III or MLS/GNSS/RNP ", by adding "a)" before the words "conical surface", and by adding the new sub-para. b) as given above.

IFALPA POLICY

For the same reasons as given for the POL-STAT (April 1987) amending para. 4.2.13, the list of obstacle limitation surfaces in para. 4.2.15 should also be expanded to include "lateral offset or curved approach surface (MLS/GNSS/RNP)" and the opening sentence amended by addition of the words "or MLS/GNSS/RNP " to follow ".... established for a precision approach runway Category II or III." **POL-STAT 1999 [REAFFIRMED 2011]**

EXTENSION OF CONICAL SURFACE FOR MLS PROCEDURES ***ICAO ANNEX 14 7TH EDITION***

4.2.16 ***ICAO para. 4.2.16*** *states that the heights and slopes of the surfaces shall not be greater than, and their other dimensions not less than, those*

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specified in Table 4-1, except in the case of the horizontal section of the approach surface (see 4.2.17).

4.2.17 ***ICAO para. 4.2.17*** *states that the approach surface shall be horizontal beyond the point at which the 2.5 per cent slope intersects:* ***ICAO ANNEX 14 7TH EDITION***

a) a horizontal plane 150m above the threshold elevation; or

b) the horizontal plane passing through the top of any object that governs the obstacle clearance limit;

which ever is the higher.

IFALPA POLICY

Provision should be made for the MLS/GNSS/RNP procedures by extension of the conical surface, which is a rational method of controlling objects under the flight path of complex MLS/GNSS/RNP approaches. The conical surface is presently used to protect circling approaches and, faced with the potential for multi-azimuth approaches with MLS, it is necessary to ensure adequate obstacle protection for those approaches in cases where existing objects cannot be removed. **POL-STAT 1999 [REAFFIRMED 2011]**

Accordingly, the following words should be added at the end of para. 4.2.16:

"... and in the case of MLS/GNSS/RNP procedures, the conical surface shall be extended to cover the flight path."

INNER APPROACH SURFACE – DIMENSIONS AND APPLICABILITY **POL-STAT 1984 [REAFFIRMED 2011]**

4.2.16.x A new paragraph should be added specifying the dimensions of the inner approach surface, which have proven safe for Cat. II and III operations. Evidence of 98 accidents in low visibility, of which 68% were in Cat I, suggests that a review may indicate an increase in the size. However, IFALPA cannot accept a reduction in size or any increase in the slope angle. The new text should read as follows:

"4.2.16.x The dimensions of the inner approach surface shall not be less than those specified in Table 4-1 (120m x 60m x 900m). These dimensions and slopes shall apply to Category I, II and III runways."

RUNWAYS MEANT FOR TAKE-OFF

4.2.23 ***ICAO para. 4.2.23*** *states that the dimensions of the surface shall not be less than the dimensions specified in Table 4-2, except that a lesser length may be adopted for the take-off climb surface where such lesser length would be consistent with procedural measures adopted to govern the outward flight of aeroplanes.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

A new sub-paragraph should be added reading as follows: **POL-STAT 1984 [REAFFIRMED 2011]**

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"4.2.23.x Where the criteria in 4.2.23 and Table 4.2 cannot be complied with due to obstacles in the straight take-off flight path, the following shall apply:

a) Curved Limitation Surface. The limits of the curved limitation surface shall comprise:

an inner edge of 150m either side of the extended centre-line and expanding at 0.125D laterally where D is the horizontal distance the aeroplane has travelled from the inner edge. The other dimensions of the surface are as described for take-off runways in Table 4.2;

the inner edge of the surface shall commence where the aeroplane is required to commence turning;

where the inner edge is beyond the distance from runway end as described in Table 4.2 then the 0.125D requirement shall commence at the width obtained by applying the appropriate splay for the runway.

b) When the curved limitation surface is implemented the entire take-off surface shall have an obstacle free surface with a slope of 1.6 per cent (1:62.5).

Note: The dimensions of the inner edge for different runway classifications are shown in Table 4-2 and depicted in Figure 4-1."

4.2.24 ***ICAO para. 4.2.24*** *recommends that the operational characteristics of aeroplanes for which the runway is intended should be examined to see if it is desirable to reduce the slope specified in Table 4-2 when critical operating conditions are to be catered to. If the specified slope is reduced, corresponding adjustment in the length of take-off climb surface should be made so as to provide protection to a height of 300m.*

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An appended Note adds that when local conditions differ widely from sea level standard atmospheric conditions, it may be advisable for the slope specified in Table 4-2 to be reduced. The degree of this reduction depends on the divergence between local conditions and sea level standard atmospheric conditions, and on the performance characteristics and operational requirements of the aeroplanes for which the runway is intended.

IFALPA POLICY

IFALPA considers that this paragraph should be upgraded to the status of a Standard, changing "should" to "shall", with the following amendments:

POL-STAT 1984 [REAFFIRMED 2011]

a) in para. 4.2.24, change the final figure "300m" to read "450m (1500 ft)";

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b) in the Note, change ".... it may be advisable ...." to read "... it is advisable"; and

c) add a further sentence reading:

"The effect of these conditions on the performance is contained in the appropriate Aeroplane Flight Manual."

LIMITATIONS REGARDING NEW OBSTACLES

ICAO ANNEX 14 7TH EDITION

4.2.26 ***ICAO para. 4.2.26*** *recommends that, if no object reaches the 2 per cent (1:50) take-off climb surface, new objects should be limited to preserve the existing obstacle free surface or a surface down to a slope of 1.6 per cent (1:62.5).*

IFALPA POLICY

POL-STAT 1984 [REAFFIRMED 2011]

IFALPA considers that this paragraph should be upgraded to the status of a Standard, changing "should" to "shall", with the following amendments:

a) it should commence with the opening words "For existing runways, ..."; and

b) the words "... a slope of 1.6 per cent (1:62.5)" should be changed to ".. a slope of 1 per cent (1:100)."

DIMENSIONS AND SLOPES OF OBSTACLE LIMITATION SURFACES

POL-STAT 1984 [REAFFIRMED 2011]

Table 4-2 This Table requires amendment by substitution of the take-off climb surface slopes for runway code numbers 2, 3 and 4, as indicated:

Table 4-2 - Dimensions and slopes of obstacle limitation surfaces

RUNWAYS MEANT FOR TAKE-OFF			
	Code Number		
Surface and Dimensions[a]	1	2	3 or 4
(1)	(2)	(3)	(4)
TAKE-OFF CLIMB			
Length of inner edge	60m	80m	180m
Distance from runway end[b]	30m	60m	60m
Divergence (each side)	10%	10%	12.5%
Final width	380m	580m	1,200m
			1,800m[c]
Length	1,600m	2,500m	15,000m
Slope	5%	1.5%	1%

a. all dimensions are measured horizontally unless specified otherwise.

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b. the take-off climb surface starts at the end of the clearway if the clearway length exceeds the specified distance.

c. 1,800 m when the intended track includes changes of heading greater than 15° for operations conducted in IMC, VMC by night.

d. see 4.2.24 and 4.2.26.

IFALPA POLICY

"SEE AND BE SEEN" CONCEPT

POL-STAT 1984 [REAFFIRMED 2011]

IFALPA should continue to impress upon ICAO that the "see and be seen" concept for the avoidance of obstacles is not acceptable to pilots and that the marking and lighting of obstacles as stipulated at present is not sufficient.

PERMANENT JET BLAST FENCES

POL-STAT 1986 [REAFFIRMED 2011]

It has long been accepted that the existence of any obstruction in the take-off or approach paths constitutes a hazard. The introduction of jet blast fences at the ends of runways has been made almost insidiously; and they have, in the main, been accepted by pilots in the belief that the frangible links used in their erection would provide an acceptable degree of safety in the event of their being struck by an aircraft in flight. However experience has thrown doubt on the validity of this supposition.

Accordingly, IFALPA considers that permanent blast fences should not be erected in the approach and take-off paths of aircraft. When the safety of operations would be improved by the erection of a temporary blast fence (e.g. for the dispersal of turbulent wake across another runway), such erection should be capable of rapid removal and should be in position only when actually satisfying its design purpose.

4.3 OBJECTS OUTSIDE THE OBSTACLE LIMITATION SURFACES

4.3.1 ***ICAO para 4.3.1*** *recommends arrangements should be made to enable the appropriate authority to be consulted concerning proposed construction beyond the limits of the obstacle limitation surfaces that extend above a height established by that authority, in order to permit an aeronautical study of the effect of such construction on the operation of aeroplanes.*

ICAO ANNEX 14 7TH EDITION

4.3.2 ***ICAO para 4.3.2*** *recommends that in areas beyond the limits of the obstacle limitation surfaces, at least those objects which extend to a height of 150m or more above ground elevation should be regarded as obstacles, unless a special aeronautical study indicates that they do not constitute a hazard to aeroplanes.*

ICAO ANNEX 14 7TH EDITION

Note. - This study may have regard to the nature of operations concerned and may distinguish between day and night operations.

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IFALPA POLICY

IFALPA believes that the recommendations 4.3.1 and 4.3.2 should be upgraded to a standard. **POL-STAT 2017**

IFALPA advocates that wind disturbance created by buildings, manmade structures and natural obstacles that adversely affect an aircraft's behaviour during the take-off, landing or missed approach phase of flight require consideration during the design and planning phase. Such an assessment should be based on proven scientific study, such as the NLR - ATSI (Netherlands Air Transport Safety Institute) study. The study shall consider, but not be limited to, effects such as wake, vortices, and other wind disturbances that originate from buildings, manmade structures, natural obstacles and other objects.

The effects of the wind disturbance should be assessed against the controllability and performance of the aircraft according to its category. The results of the assessments should be compared with a known risk matrix such as is found in the ICAO Safety Management Manual (Doc. 9859).

Furthermore, IFALPA advocates that assessments shall be carried out for existing buildings, structures and objects near existing runways or those runways which could potentially be lengthened or widened in the future.

The scientific study of any particular aerodrome should in the first instance consider risk management for that specific assessment.

The following paragraphs should therefore be **added** to ICAO Annex 14, chapter 4.3.1:

4.3.1.1. The construction of manmade objects, structures or obstacles in the vicinity of the initial departure path, the final approach path (including the missed approach flight path), the take-off and the landing roll, shall not be allowed, unless it is proven (by established scientific methods) that the effect of the construction will not cause unacceptable levels of wake, turbulence and/or vortices to aircraft operations due to wind disturbance. **POL-STAT 2017**

In addition, a safety assessment study shall be carried out on the effects on flight operations, such as, but not limited to, visual interference of these man-made objects, structures or obstacles.

4.3.1.2 The aforementioned scientific methods shall include, but not be limited to, computational fluid dynamics and advanced wind tunnel testing. These scientific studies shall consider all aircraft performance categories taking in to account the individualistic nature of an aerodrome and its associated runways.

4.3.1.3 The construction, extension or expansion of runways in the vicinity of manmade structures or natural obstacles shall not be commenced unless it is proven (by scientific methods) that aircraft operations during initial departure, on the final approach path (including the missed approach flight path), the take-off and the landing roll will not adversely be affected by wake, turbulence and/or vortices due to the disturbance of the wind by the aforementioned structures and obstacles.

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4.3.1.4 For existing runways, the effects of wind disturbance, namely wake, turbulence and vortices of existing structures and obstacle within the vicinity of runways shall be assessed (by scientific methods). This assessment shall consider the risks associated with the use of that runway by aircraft of all performance categories.

4.3.1.5 Manmade objects, structures or obstacles actively causing atmospheric disturbances or producing emissions which affect the flight path of the aircraft shall also be taken into consideration in the construction, extension or expansion of a runway. These hazards shall be assessed by a scientific study with regard to the operation of aircraft of all categories on the aforementioned runway.

A new Section should be added to Chapter 4, as follows:

POL-STAT 1999 [REAFFIRMED 2011]

"4.X ACCURACY OF OBSTACLE SURVEYS

4.x.1 Where an obstacle (controlling obstacle) has an adverse effect on an instrument procedure or take-off climb surface, then a special survey of each such obstacle shall be conducted with the objective of reducing the additive by increasing the survey accuracy."

See IFALPA Airport Services Manual, Part 6 for detailed policy on the requirements for obstacle survey tolerances. See also IFALPA Annex 4, para. 3.7.3 and IFALPA Annex 6, para 5.2.7.1.3 for other related policy on this subject.

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CHAPTER 5 VISUAL AIDS FOR NAVIGATION

5.1 INDICATORS AND SIGNALLING DEVICES

5.1.1 WIND DIRECTION INDICATORS

Application — *ICAO ANNEX 14 7TH EDITION*

5.1.1.1 ***ICAO para 5.1.1.1*** *states that an aerodrome shall be equipped with at least one wind direction indicator.*

Location

5.1.1.2 ***ICAO para 5.1.1.2*** *states that a wind direction indicator shall be located so as to be visible from aircraft in flight or on the movement area and in such a way as to be free from the effects of air disturbances caused by nearby objects.* — *ICAO ANNEX 14 7TH EDITION*

Characteristics

5.1.1.3 ***ICAO para 5.1.1.3*** *recommends the form that a wind direction indicator should take. The second sentence states that it should be constructed so that it gives a clear indication of the direction of the surface wind and a general indication of the wind speed.* — *ICAO ANNEX 14 7TH EDITION*

5.1.1.4 ***ICAO para 5.1.1.4*** *recommends that the location of at least one wind direction indicator should be marked by a circular band 15m in diameter and 1.2 m wide. The band should be centred about the wind direction indicator support and should be in a colour chosen to give adequate conspicuity, preferably white.* — *ICAO ANNEX 14 7TH EDITION*

5.1.1.5 ***ICAO para 5.1.1.5*** *recommends that provision should be made for illuminating at least one wind indicator at an aerodrome intended for use at night.* — *ICAO ANNEX 14 7TH EDITION*

IFALPA POLICY

It is recommended that IFALPA Policy beginning at 5.1.1 be revised as shown below:

Rationale:

1) Establish a Standard requiring an illuminated wind direction indicator (windsock) to serve each end of runways utilized by air carrier aircraft.

2) Establish a Standard specifying the location of windsocks in the vicinity of the VGSI (PAPI).

3) Establish a Recommendation that windsocks be provided in the vicinity of runway/runway intersections. Such placement will provide wind information to flight crews (i.e., unusual winds or wake vortex turbulence resulting from a landing or departure on the intersected runway) and alert flight crews to the location of the intersected runway.

4) Establish somewhat revised criteria for the General Purpose Wind Direction Indicator. This is the only indicator to which the "*...free from the effects of air disturbances caused by nearby objects...*" criteria should apply. Each indicator serving

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a runway end should reflect the actual wind conditions as affected by nearby objects because that is the wind that arriving and departing aircraft will encounter.
5) Establish a Standard specifying frangible mountings.

Application

5.1.1.1 A wind direction indicator shall be provided for each runway end. **POL-STAT 2004** [Reaffirmed 2015]

5.1.1.2 Recommendation— A wind direction indicator should be provided at runway/runway intersections. **POL-STAT 2004** [Reaffirmed 2015]

5.1.1.3 Where local RT is not utilized for air traffic control or local RT control is not available during all hours landings and departures can be expected, a general purpose wind direction indicator shall be provided so that arrival aircraft aloft are able to determine aerodrome general wind information. **POL-STAT 2004** [Reaffirmed 2015]

Location

5.1.1.4 Wind direction indicators serving runway ends shall be placed near and on the same runway side as the PAPI (or other VGSI) approximately 150 m upwind of the runway end so as to be clearly visible to aircraft on short final approach and to departing aircraft. **POL-STAT 2004** [Reaffirmed 2015]

5.1.1.5 Recommendation.— A wind direction indicator serving a runway/runway intersection should be placed in one quadrant of the intersection so as to be easily visible to aircraft utilizing either runway. **POL-STAT 2004** [Reaffirmed 2015]

5.1.1.6 A general purpose wind direction indicator, when provided, shall be placed so as to be clearly visible and understandable to aircraft overhead the aerodrome. **POL-STAT 2004** [Reaffirmed 2015]

5.1.1.7 A general purpose wind direction indicator, when provided, shall be placed so as to be free from the effects of air disturbances caused by nearby objects. **POL-STAT 2004** [Reaffirmed 2015]

5.1.1.8 Recommendation— A general purpose wind indicator, when provided, should be placed so as to be visible to aircraft operating on the movement area where possible. **POL-STAT 2004** [Reaffirmed 2015]

Characteristics

5.1.1.9 Wind direction indicators shall be in the form of a truncated cone made of fabric and shall have a length of not less than 3.6 m and a diameter, at the larger end, of .9 m. It shall be constructed so that it gives a clear indication of the direction of the surface wind and a general indication of the wind speed. **POL-STAT 2004** [Reaffirmed 2015]

5.1.1.10 Recommendation— Where practicable, fabric should be a single colour, preferably white or orange. Where a combination of two colours is required to provide adequate conspicuity against changing backgrounds, they should preferably be orange and white, red and white or, black and white, and should be arranged in five alternate bands, the first and last bands being the darker colour. **POL-STAT 2004** [Reaffirmed 2015]

5.1.1.11 Wind direction indicators intended for use at night or during low ambient light conditions shall be illuminated. **POL-STAT 2004** [Reaffirmed 2015]

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5.1.1.12 A general purpose wind direction indicator shall be clearly visible and understandable from a height of at least 300 m above aerodrome elevation. **POL-STAT 2004** [Reaffirmed 2015]

5.1.1.13 Recommendation—A general purpose wind direction indicator, when provided, should be marked by a circular band 15 m in diameter and 1.2 m wide. The band should be centred about the wind direction indicator support and should be in a colour chosen to provide adequate conspicuity, preferably white. **POL-STAT 2004** [Reaffirmed 2015]

5.1.1.14 Wind direction indicator mountings shall be frangible. **POL-STAT 2004** [Reaffirmed 2015]

5.2 MARKINGS

5.2.1 GENERAL

Colour and Conspicuity

5.2.1.4 ***ICAO para. 5.2.1.4*** *states that runway markings shall be white.* ***ICAO ANNEX 14 7TH EDITION***

Note 1 advises that it has been found that, on runway surfaces of light colour, the conspicuity of white markings can be improved by outlining them in black.

Note 2 advises that it is preferable that the risk of uneven braking action on markings be reduced insofar as practicable by the use of a suitable kind of paint.

Note 3 advises that markings may consist of solid areas or a series of longitudinal stripes providing an effect equivalent to the solid areas.

IFALPA POLICY

The content of Note 2 should be strengthened by incorporating the intent as an integral part of the Standard. **POL-STAT 1985** [Reaffirmed 2013]

A second sentence should therefore be added to the standard reading "The material used for the markings shall be such as not adversely to affect the braking characteristics of aircraft." Note 2 should then be deleted and re-number Note 3 as Note 2.

5.2.1.5 ***ICAO para 5.2.1.5*** *states that taxiway markings, runway turn pad markings and aircraft stand markings shall be yellow.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

IFALPA believes that the conspicuity of the taxiway markings would be significantly increased if 'reflective' paint was used. Also, the scope of this paragraph should be extended to cover runway turn pads. **POL-STAT 1995** [Reaffirmed 2013]

Accordingly, amend para. 5.2.1.5 to read as follows:

"Taxiway markings, runway turn pad markings and aircraft stand markings shall be 'reflective' yellow."

STATUS AND DATE

5.2.4 THRESHOLD MARKING

Application

5.2.4.1 ***ICAO para. 5.2.4.1*** *States that a threshold marking shall be provided at the threshold of a paved instrument runway, and of a paved non-instrument runway where the code number is 3 or 4 and the runway is intended for use by international commercial air transport.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA believes that all paved runways should be provided with a threshold marking.

POL-STAT 1990 [Reaffirmed 2013]

Accordingly, para. 5.2.4.1 should be amended to read as follows:

"5.2.4.1 A threshold marking shall be provided at the threshold of a paved runway or a paved non-instrument runway intended for use by international commercial air transport."

5.2.5 AIMING POINT MARKING

5.2.5.4 ***ICAO para. 5.2.5.4*** *states that the aiming point marking shall commence no closer to the threshold than the distance indicated in the appropriate column of Table 5-1, except that, on a runway equipped with a visual approach slope indicator system, the beginning of the marking shall be coincident with the visual approach slope origin.*

ICAO ANNEX 14 5TH EDITION

IFALPA POLICY

IFALPA considers that the aiming point marking should be at a constant distance from the threshold, depending on the length of the runway. The ICAO text should therefore be amended to read:

POL-STAT 2009

5.2.5.4 The aiming point marking shall commence in accordance with the distance indicated in the appropriate column of Table 5-1. If the runway is equipped with a visual approach slope indicator system, the beginning of the marking shall be coincident with the visual approach slope origin.

Note: ILS/MLS glideslope and any visual guidance cues must be calibrated to lead to the same point on the runway, the distance from the threshold shall be in accordance with table 5-1.

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5.2.6 TOUCHDOWN ZONE MARKING

Application

5.2.6.1 ***ICAO para. 5.2.6.1*** *states that a touchdown zone marking shall be provided in the touchdown zone of a paved precision approach runway where the code number is 2, 3 or 4.*

ICAO ANNEX 14 7TH EDITION

5.2.6.2 ***ICAO para 5.2.6.2*** *recommends that a touchdown zone marking should be provided in the touchdown zone of a paved non-precision approach or non-instrument runway where the code number is 3 or 4 and additional conspicuity of the touchdown zone is desirable.*

IFALPA POLICY

IFALPA considers that touchdown zone markings are necessary for all paved runways, regardless of non-instrument or non-precision runways therefore ICAO 5.2.6.1 should read:

POL-STAT 2004 [Reaffirmed 2015]

5.2.6.1 A touchdown zone marking shall be provided in the touchdown zone of all paved precision approach runways.

IFALPA also considers it necessary for ICAO 5.2.6.2 to be a standard; therefore the paragraph should read:

POL-STAT 2004 [Reaffirmed 2015]

5.2.6.2 A touchdown zone marking shall be provided in the touchdown zone of all paved non-precision approach and non-instrument runways.

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5.2.7 RUNWAY SIDE STRIPE MARKING

Application

5.2.7.1 ***ICAO para. 5.2.7.1*** *states that a runway side stripe marking shall be provided between the thresholds of a paved runway where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain.*

ICAO ANNEX 14 7TH EDITION

5.2.7.2 ***ICAO para. 5.2.7.2*** *recommends that a runway side stripe marking should be provided on a precision approach runway irrespective of the contrast between the runway edges and the shoulders or the surrounding terrain.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that the requirement for runway side stripe marking between the thresholds of a paved runway should be standardised. In para. 5.2.7.1, therefore, the qualifying words "...where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain" should be deleted. Para. 5.2.7.2 should also be deleted.

POL-STAT 1985
[Reaffirmed 2013]

Add the following policy under sub-section 5.2.7:

"5.2.7.x Where there is a runway turn pad, the side stripe marking shall be continued between the runway and the runway turn pad. (See Figure 5-6A)"

POL-STAT 1995
[Reaffirmed 2013]

5.2.8 TAXIWAY CENTRE LINE MARKING

Application

5.2.8.1 ***ICAO para 5.2.8.1*** *states that taxiway centre line marking shall be provided on a paved taxiway, de/anti-icing facility and apron where the code number is 3 or 4 in such a way as to provide continuous guidance between the runway centre line and the aircraft stands.*

ICAO ANNEX 14 7TH EDITION

5.2.8.2 ***ICAO para 5.2.8.2*** *recommends that a taxiway centre line marking should be provided on a paved taxiway, de/anti-icing facility and apron where the code number is 1 or 2 in such a way as to provide continuous guidance between the runway centre line and the aircraft stands.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

The standard in paragraph 5.2.8.1 does not include the requirement for taxiway centre line markings to be provided on a paved taxiway where the code number is 1 or 2. However, this is stated as a recommended practice in the subsequent paragraph 5.2.8.2. IFALPA considers this to be inadequate because good guidance to the pilot is always necessary, irrespective of the size of the aeroplane or the length of the runway; i.e. there is an equal requirement for taxiway guidance to be provided on the small aerodrome served by small aeroplanes.

POL-STAT 2004
[Reaffirmed 2015]

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5.2.8.1 Taxiway centre line markings shall be provided on a paved taxiway where the code number is 1, 2, 3 or 4 in such a way as to provide continuous guidance between the runway centre line and the aircraft stands."

5.2.8.2 Taxiway centre line markings shall be provided on all paved taxiways in such a way as to provide continuous guidance between the runway centre line and the aircraft stands."

5.2.X Taxiway Side Stripe Marking

Application **POL-STAT 2000** [Reaffirmed 2013]

5.2.x.1 Taxiway side stripe markings shall be provided on a paved taxiway to delineate the lateral boundaries of the taxiway surface intended for the movement of aircraft.

Note: *Application includes non-load-bearing surfaces as described in ICAO Annex 14, Chapter 7, para. 7.2.*

Location **POL-STAT 2000** [Reaffirmed 2013]

5.2.x.2 A taxiway side stripe marking shall be placed along each taxiway lateral boundary with the outer edge of the marking approximately coincident with the lateral boundary.

Characteristics **POL-STAT 2000** [Reaffirmed 2013]

5.2.x.3 A taxiway side stripe marking shall consist of a pair of solid reflective yellow lines upon a fully contrasted background, each 15 cm wide and spaced 15 cm apart.

5.2.Y Taxi Lane Side Stripe Marking

Application **POL-STAT 2000** [Reaffirmed 2013]

5.2.y.1 Taxi lane side stripe markings shall be provided along taxi lanes to provide clearance from aircraft in adjacent taxi lanes of wide apron areas, aircraft within parking stand boundaries, ground service vehicles and equipment located on apron areas

Location **POL-STAT 2000** [Reaffirmed 2013]

5.2.y.2 Taxi lane side stripe markings shall be placed along each taxi lane lateral boundary with the outer edge of the marking approximately coincident with the lateral boundary

Characteristics **POL-STAT 2000** [Reaffirmed 2013]

5.2.y.3 Taxi lane side strip markings shall consist of a pair of broken reflective yellow lines upon a fully contrasted background, each 15 cm wide and spaced 15 cm apart.

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5.2.14 APRON SAFETY LINES

Application

5.2.14.1 ***ICAO para 5.2.14.1*** *recommends that apron safety lines should be provided on a paved apron as required by the parking configurations and ground facilities*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

5.2.14 Apron Safety Lines should be re-named Apron Stand Safety Lines

POL-STAT 2004 [Reaffirmed 2015]

5.2.x APRON BOUNDARY MARKING

IFALPA POLICY

A means is needed to allow that portion of the apron/ taxiway structure, which is not under Air Traffic Services control to be easily identified by the pilot. The following policy requires the provision of a standard marking to delineate the boundary where operations are either conducted under the control of a separate unit or are uncontrolled, as compared with the ATC authority, which is exercised on the manoeuvring area.

5.2.x Apron Boundary Marking

Application

POL-STAT 2004 [Reaffirmed 2015]

5.2.x.1 An apron boundary marking shall be provided to delineate the boundary between areas of ATS control and other than ATS control.

Location

POL-STAT 2004 [Reaffirmed 2015]

5.2.x.2 The apron boundary marking shall be placed along the boundary separating the aircraft movement area (ATS control) and the non-movement area (other than ATS control).

Characteristics

POL-STAT 2004 [Reaffirmed 2015]

5.2.x.3 An apron boundary marking shall consist of a pair of yellow lines, each 15cm wide and spaced 15cm apart upon a fully contrasted background. The line adjacent to the area of ATS control shall be a broken line and the line adjacent to the area of other than ATS control shall be a solid line as shown in ICAO Annex 14 Figure 5.6

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5.2.x.4 The apron boundary shall be highlighted by an appropriate information sign where feasible or appropriate information marking where signs are not feasible. **POL-STAT 2004** [Reaffirmed 2015]

ADD the following new policies under 5.2: **POL-STAT 1995** [Reaffirmed 2013]

"**5.2.XX RUNWAY TURN PAD EDGE MARKINGS**

Location

5.2.xx.1 The outer edge of the marking shall be located approximately on the edge of the runway turn pad.

Characteristics

5.2.xx.2 Recommendation. A runway turn pad edge marking should consist of a continuous double yellow line, with each line being at least 15 cm (6 inches) in width, spaced 15 cm (6 inches) apart (edge to edge). The runway turn pad edge marking should have an overall width of at least 0.45 m. (See Figure 5-6A)"

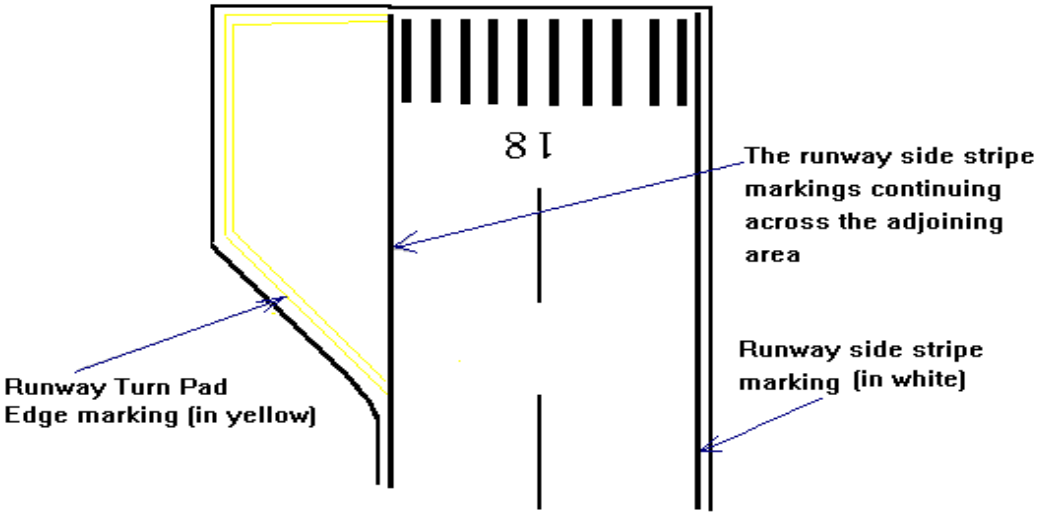

Figure 5.6A **Shows the Runway and Runway Turn Pad Markings**

"5.2.YY RUNWAY TURN PAD GUIDANCE LINE MARKING **POL -STAT 1995** [Reaffirmed 2013]

5.2.yy.1 Runway turn pad guidance line marking shall be provided to facilitate guidance from the runway centre line through the runway turn pad to the point where a full turn is to be made. (See figure 3.4)

Note: At the point where a full turn is to be made as indicated by the runway turn pad guidance line, a full turn is necessary only for the critical aeroplane type using the runway turn pad. Other less critical aeroplanes may not need to make a full turn.

5.2.yy.2 Recommendation:- The intersection angle of the runway turn pad guidance line with the runway centre line should be designed with a radius of turn-off curve of at least :

- 550m (1804 ft.) where the code number is 3 or 4; and
- 275m (902 ft.) where the code number is 1 or 2; and should not exceed 30°

5.2.yy.3 Recommendation:- The runway turn pad guidance line should be curved from the runway centre line into the turn pad and it should start at least 60 m prior to the point of tangency where the code letter is 3 or 4, and for a distance of at least 30 m where the code letter is 1 or 2.

5.2.yy.4 Recommendation:- The straight portions of the runway turn pad guidance line should be parallel to the outer edge of the runway turn pad. The distance between the runway turn pad guidance line and the edge of the runway or runway turn pad should be as given in the following tabulation or greater:

Code letter	**Distance between runway turn pad guidance line and the runway edge or runway turn pad edge**
A	6m (19.7ft)
B	8.4m (27.6ft)
C	12m (39.4ft) if the turn pad is intended to be used by aeroplanes with a wheel base less than 18m (59.1ft); 18m (59.1ft) if the turn pad is intended to be used by aeroplanes with a wheel base equal to or greater than 18m (59.1ft).
D	15m (49.3ft) if the turn pad is intended to be used by aeroplanes with an outer main gear wheel span of less than 9m (29.6ft) and a wheel base less than 18m (59.1ft). 18m (59.1ft) if the turn pad is intended to be used by aeroplanes with an outer main gear wheel span equal to or greater than 9m (29.6ft).
E	18m (59.1ft)

5.2.yy.5 Recommendation: The runway turn pad guidance line should guide the aeroplane in such a way as to allow a straight portion of taxiing before the point where a full turn is to be made."

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5.3 LIGHTS

ICAO ANNEX 14 6TH EDITION

5.3.1 GENERAL *ICAO ANNEX 14 VOL I*

Lights which may endanger the safety of aircraft

5.3.1.1 A non-aeronautical ground light near an aerodrome which might endanger the safety of aircraft shall be extinguished, screened or otherwise modified so as to eliminate the source of danger.

ADD a note to ICAO para. 5.3.1.1

POL-STAT 2015 (AGE)

Note: Non-aeronautical ground lights include LED billboards or signage, plasma billboards or signage, strobes, lasers, and any other type of light that could distract and/or inhibit a pilot's ability to see visual cues necessary for the safe conduct of the flight.

Implementation of standardised lighting aids

POL -STAT 1987
[Reaffirmed 2013]

IFALPA considers that standardisation in configuration, colour and methods, with reference to the integration of approach, threshold and runway lights and the ILS reference point should be introduced on a world-wide basis at the earliest practicable date.

POL-STAT 2004
[Reaffirmed 2015]

All aerodrome lights pertaining to the navigation of aircraft conducting precision and non-precision approaches should be designed to be seen by pilots conducting approaches using the ILS, MLS or Approach and Landing Operations with Vertical Guidance (APV) Systems.

> **Note:-** Because of the track off-sets and possible glide-path angles with MLS it is possible that the standard aerodrome lighting may not be visible. Specifically, this problem will occur with MLS approaches utilising glide-path angles greater than 3 degrees. Once that approach angle is significantly changed then certain aerodrome lights will not be visible. Therefore, particularly at Stolports or short instrument runways where MLS will be installed, an examination of all operational lights must be conducted before operational approval is given for these complex approaches.

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Elevated approach lights

5.3.1.4 ***ICAO para. 5.3.1.4*** *states that elevated approach lights and their supporting structures shall be frangible except that, in that portion of the approach lighting system beyond 300 m from the threshold:* ***ICAO ANNEX 14 7TH EDITION***

a) where the height of a supporting structure exceeds 12 m, the frangibility requirement shall apply to the top 12 m only; and

b) where a supporting structure is surrounded by non frangible objects, only that part of the structure that extends above the surrounding objects shall be frangible.

5.3.1.5 ***ICAO para. 5.3.1.5*** *states that when an approach light fixture or supporting structure is not in itself sufficiently conspicuous, it shall be suitably marked.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

Changes are required to both these paragraphs. para. 5.3.1.4 should be revised completely to read: **POL-STAT 1985** [Reaffirmed 2013]

"5.3.1.4 Elevated approach lights and their supporting structures within 1000 m from the threshold shall be light-weight and have a frangible coupling at their bases."

Siting and installation of approach lighting system

A new paragraph is required after 5.3.1.5 dealing with the infringement of an obstacle free surface. The surface proposed in the following text also covers the case of take-offs in the opposite direction. Presently the existence of some non-frangible lighting systems constitutes a hazard when authorities permit the use of "wet V_1" procedures combined with the allowance of credit for clearways. In the event of engine failure under these circumstances, the aircraft could be as low as 15 feet at the end of the clearway and therefore in a very close proximity to the approach lighting structures. **POL-STAT 1982** [Reaffirmed 2016]

The proposed text reads:

5.3.1.5.x The siting and installation of approach lighting systems shall not infringe an obstacle free surface which allows no obstacle to penetrate a plane one degree below the lower boundary of the on-slope visual approach slope indicator system indication. The surface shall have an origin downwind of, and at the same level as, the visual approach slope indicator light units commencing at a distance from the units of 90m for runways of Code Numbers 3 and 4, 60m for a runway of Code Number 2 and 30m for a runway of Code Number 1." **POL-STAT 1982** [Reaffirmed 2016]

LIGHT INTENSITY AND CONTROL

ICAO para. 5.3.1.10 *states that where a high-intensity lighting system is provided, a suitable intensity control shall be incorporated to allow for adjustment of the light* ***ICAO ANNEX 14 7TH EDITION***

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intensity to meet the prevailing conditions. Separate intensity controls or other suitable methods shall be provided to ensure that the following systems, when installed, can be operated at compatible intensities:

- *approach lighting system;*
- *runway edge lights;*
- *runway threshold lights;*
- *runway end lights;*
- *runway centre line lights;*
- *runway touchdown zone lights; and*
- *taxiway centre line lights.*

IFALPA POLICY

The above list of lighting systems should be extended to include:

POL-STAT 1995
[Reaffirmed 2013]

"- runway turn pad guidance lights"

5.3.4 APPROACH LIGHTING SYSTEMS

Simple approach lighting system

Location

5.3.4.2 ***ICAO para. 5.3.4.2*** *states that a simple approach lighting system shall consist of a row of lights on the extended centre line of the runway extending, whenever possible, over a distance of not less than 420m from the threshold with a row of lights forming a crossbar 18m or 30m in length at a distance of 300m from the threshold.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

An amendment is required to this text which restricts the provision of a simple approach lighting system to runways of Code letter 1. For runways of Codes 2, 3 or 4 a full 3000 ft. approach lighting system is required.

POL-STAT 1981
(revised 1986)
[Reaffirmed 2016]

To this end, the words "… whenever possible ..." should be deleted from para. 5.3.4.2 and a further sentence should be added so that para 5.3.4.2 now reads:

> A simple approach lighting system shall consist of a row of lights on the extended centre line of the runway extending, over a distance of not less than 420m from the threshold with a row of lights forming a crossbar 18m or 30m in length at a distance of 300m from the threshold. Installation of the simple approach lighting system shall be restricted to runways of Code 1.

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5.3.5 VISUAL APPROACH SLOPE INDICATOR SYSTEMS

ICAO ANNEX 14 7TH EDITION

Application

5.3.5.1 A visual approach slope indicator system shall be provided to serve the approach to a runway whether or not the runway is served by other visual approach aids or by non-visual aids, where one or more of the following conditions exist:

a) The runway is used by turbojet or other aeroplanes with similar approach guidance requirements;
b) the pilot of any type of aeroplane may have difficulty in judging the approach due to:
   1) inadequate visual guidance such as is experienced during an approach over water or featureless terrain by day or in the absence of sufficient extraneous lights in the approach area by night; or
   2) misleading information such as is produced by deceptive surrounding terrain or runway slopes;
c) the presence of objects in the approach area may involve serious hazard if an aeroplane descends below the normal approach path, particularly if there are no non-visual or other visual aids to give warning of such objects;
d) physical conditions at either end of the runway present a serious hazard in the event of an aeroplane undershooting or overrunning the runway; and
e) terrain or prevalent meteorological conditions are such that the aeroplane may be subjected to unusual turbulence during approach.

IFALPA POLICY

IFALPA believes that the conditions listed in 5.3.5.1 should be amended for the following reasons:

The requirement for Visual Approach Slope Guidance (VASG) should be separate from the type of propulsion system. This current methodology is no longer applicable considering the size and performance characteristics of many turboprop aircraft in comparison to jet aircraft of similar size.

Turboprop and turbofan aircraft of similar sizes are operated by airlines which have stringent stable approach policy criteria. This policy focuses on nominal approach profile management, promoting the safe operation of an aircraft during the approach and landing phases of flight. This policy has been introduced to prevent runway excursions, whilst vertical guidance provides an element of risk mitigation to Controlled Flight into Terrain (CFIT).

The following paragraphs in ICAO Annex 14 Section 5.3.5.1 should therefore be amended as follows:

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Visual Approach Slope Guidance Systems **POL-STAT 2018**

A visual approach slope indicator system shall be provided to serve the approach to a runway whether or not the runway is served by other visual approach aids or by non-visual aids, where one or more of the following conditions exist:

a) the runway is used by turbojet, ***turbofan,*** or other aeroplanes with similar approach ~~guidance~~ ***performance*** requirements;

b) the pilot of any type of aeroplane may have difficulty in judging the approach due to:

1) inadequate visual guidance such as is experienced during an approach over water or featureless terrain by day or in the absence of sufficient extraneous lights in the approach area by night; or

2) misleading information such as is produced by deceptive surrounding terrain or runway slopes;

c) the presence of objects in the approach area may involve serious hazard if an aeroplane descends below the normal approach path, particularly if there are no non-visual or other visual aids to give warning of such objects;

d) physical conditions at either end of the runway present a serious hazard in the event of an aeroplane undershooting or overrunning the runway;

e) terrain or prevalent meteorological conditions are such that the aeroplane may be subjected to unusual turbulence during approach.

Characteristics of the light units

The area around the visual approach slope indicator system should be prepared so as to provide distinct contrast with the surrounding terrain when viewed down the normal glide slope."

POL-STAT 1983 [Reaffirmed 2013]

Accordingly, a new paragraph should be added between existing 5.3.5.2 and 5.3.5.3 to read:

"5.3.5.x The standard visual approach slope indicator systems shall be suitable for both day and night operation. The contrast between the visual approach slope indicator system light units and the surrounding terrain shall ensure that the system is usable in VMC day conditions at a distance of at least 3 nautical miles (5.58 kilometres)."

5.3.9 RUNWAY EDGE LIGHTS

Application

ICAO ANNEX 14 7TH EDITION

5.3.9.2 ***ICAO para. 5.3.9.2*** *recommends that runway edge lights should be provided on a runway intended for takeoff with an operating minimum below an RVR of the order of 800 m by day.*

IFALPA POLICY

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IFALPA considers that para. 5.3.9.2 should be upgraded to the status of a Standard, changing "should" to "shall". **POL-STAT 1985** [Reaffirmed 2013]

Location

5.3.9.6 ***ICAO para 5.3.9.6*** *states that the lights shall be uniformly spaced in rows at intervals of not more than 60 m for an instrument runway, and at intervals of not more than 100 m for a non-instrument runway. The lights on opposite sides of the runway axis shall be on lines at right angles to that axis. At intersections of runways, lights may be spaced irregularly or omitted, provided that adequate guidance remains available to the pilot.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

IFALPA requires the spacing of runway edge lights to be standardised at 60m irrespective of whether they are instrument or non-instrument runways. Accordingly, the words "for an instrument runway, and at intervals of not more than 100m for a non-instrument runway" should be deleted. **POL-STAT 1987** [Reaffirmed 2013]

IFALPA further believes that runway edge lights are one of the references pilots have for taxiing guidance and this is supported by the NTSB which, in its analysis of the Detroit accident on 3 December 1990, stated "that the absence of runway edge lights on the runway/taxiway intersection probably contributed to the flight crews actions". If the lights had been embedded in the pavement at intervals of 200 ft, the pilots would probably have noticed them before the runway incursion and stopped taxiing.

Accordingly, the last sentence of para. 5.3.9.6 should be deleted and replaced with the following: **POL-STAT 1993** [Reaffirmed 2013]

> "Where a runway is intersected by other runways or taxiways, a semi-flush light shall be installed to maintain the uniform spacing for runway edge lights".

Maximum height above runway surface **POL-STAT 1985** [Reaffirmed 2013]

A new paragraph should be added after the existing 5.3.9.10, reading:

> "5.3.9.x The lights should be raised to a height not greater than 10 inches above the surface of the runway."

Note: Subject to the above amendments, the Federation supports the ICAO requirements for runway edge lights and includes the specifications **in toto** in the list of minimum requirements for Category II operations.

5.3.10 RUNWAY THRESHOLD AND WING BAR LIGHTS

Application of runway threshold lights

Use of low intensity strobe lights

IFALPA POLICY

Some States have in recent years introduced the use of low intensity strobe lights to identify the threshold. IFALPA considers that this method is inappropriate for precision approach procedures because there are no international criteria to govern the installation of this visual aid or the light intensities and, more importantly, there **POL-STAT 2004** [Reaffirmed 2015]

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appears to have been inadequate consideration of the effects of strobe lights on the pilots in low visibility conditions. Their use therefore carries the risk of pilot distraction and a consequent short landing. At locations where such a system is installed, the authorities should provide separate light switching to enable the strobe lights to be extinguished at pilot request.

5.3.13 RUNWAY TOUCHDOWN ZONE LIGHTS

Application

5.3.13.1 ***ICAO para. 5.3.13.1*** *states that touchdown zone lights shall be provided in the touchdown zone of a precision approach runway Category II or III.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

The present ICAO wording calls for touchdown zone lights for Category II and III operations only, whilst IFALPA believes that they should be provided for Category I also.

POL-STAT 1985 [Reaffirmed 2013]

Accordingly, the words "a precision approach runway Category II or III" should be deleted and replaced by "all instrument runways."

5.3.17 TAXIWAY CENTRE LINE LIGHTS

Application

ICAO para. 5.3.17.1 *states that taxiway centre line lights shall be provided on an exit taxiway, taxiway, de/anti-icing facility and apron intended for use in runway visual range conditions less than a value of the order of 350m in such a manner as to provide continuous guidance from the runway centre line and aircraft stands, except that these lights need not be provided where the traffic density is light and taxiway edge lights and centre line marking provide adequate guidance.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

The ICAO text should be revised to read:

POL-STAT 2005 [Reaffirmed 2016]

"5.3.17.1 Taxiway centre line lights shall be provided on an exit taxiway, taxiway, de/anti-icing facility and apron intended for use in runway visual conditions less than a value of the order of 350m in such a manner as to provide continuous guidance between the runway centre line and the aircraft stands.

STATUS AND DATE

ICAO para. 5.3.17.2 *recommends that taxiway centre line lights should be provided on a taxiway intended for use at night in runway visual range conditions of the order of 350 m or greater, and particularly on complex taxiway intersections and exit taxiways, except that these lights need not be provided where the traffic density is light and taxiway edge lights and centre line marking provide adequate guidance.*

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An appended Note advises that where there may be a need to delineate the edges of a taxiway, e.g. on a rapid exit taxiway, narrow taxiway or in snow conditions, this may be done with taxiway edge lights or markers.

IFALPA POLICY

This Recommended Practice needs revision to supplement the proposed amendment to para. 5.3.17.1, and should read:

POL-STAT 2005 [Reaffirmed 2016]

"5.3.17.2 RECOMMENDATION. - Taxiway centre line lights should be provided on a taxiway intended for use at night in visual range conditions of 350m or greater, and particularly on complex taxiway intersections and exit taxiways."

Note. - The policies related to 5.3.17.1 and 5.3.17.2 above specify when taxiway centre line lights **shall** be provided and a recommendation as to when they **should** be provided.

TAXIWAY CENTRE LINE LIGHTS ON TAXIWAYS

Location

5.3.17.13 ***ICAO para. 5.3.16.12*** *recommends that the taxiway centre line lights on a straight section of a taxiway should be spaced at longitudinal intervals of not more than 30 m, except that:*

ICAO ANNEX 14 7TH EDITION

a) larger intervals not exceeding 60 m may be used where, because of the prevailing meteorological conditions, adequate guidance is provided by such spacing;

b) intervals less than 30 m should be provided on short straight sections; and

c) on a taxiway intended for use in RVR conditions of less than a value of the order of 350 m, the longitudinal spacing should not exceed 15 m.

IFALPA POLICY

It is essential that the above provision be complied with at aerodromes where take-offs and/or landings are conducted in visibility or RVR conditions of 350 m or less.

POL-STAT 1987 [Reaffirmed 2013]

Para. 5.3.17.13 should therefore be upgraded to the status of a Standard, changing "should" to "shall".

STATUS AND DATE

5.3.17.15 ***ICAO para. 5.3.17.15*** *recommends that on a taxiway intended for use in RVR conditions of less than a value of the order of 350 m, the lights on a curve should not exceed a spacing of 15 m and on a curve of less than 400 m radius the lights should be spaced at intervals of not greater than 7.5m. This spacing should extend for 60 m before and after the curve.* ***ICAO ANNEX 14 7TH EDITION***

Note 1 to this paragraph advises that spacing on curves that have been found suitable for a taxiway intended for use in RVR conditions of the order of 350 m or greater are:

Curve radius	*Light spacing*
Up to 400m	*7.5m*
401m to 899m	*15m*
900m or greater	*30m*

Note 2 refers to 3.9.5 and Figure 3-2.

IFALPA POLICY

It is essential that the above provision be complied with at aerodromes where take-offs and/or landings are conducted in visibility or RVR conditions of 350 metres or less. **POL-STAT 1987** [Reaffirmed 2013]

Para. 5.3.17.15 should therefore be upgraded to the status of a Standard, changing "should" to "shall".

TAXIWAY CENTRE LINE LIGHTS ON RAPID EXIT TAXIWAYS

Location

5.3.17.16 ***ICAO para. 5.3.17.16*** *recommends that taxiway centre line lights on a rapid exit taxiway should commence at a point a least 60 m before the beginning of the taxiway centre line curve and continue beyond the end of the curve to a point on the centre line of the taxiway where an aeroplane can be expected to reach normal taxiing speed. The lights on that portion parallel to the runway centre line should always be at least 60 cm from any row of runway centre line lights, as shown in Figure 5-27.* ***ICAO ANNEX 14 7TH EDITION***

5.3.17.17 ***ICAO para. 5.3.17.17*** *recommends that the lights should be spaced at longitudinal intervals of not more than 15m, except that, where runway centre line lights are not provided, a greater interval not exceeding 30m may be used.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

It is essential that the above provision be complied with at aerodromes where take-offs and/or landings are conducted in visibilities or RVR conditions of 350 m or less. IFALPA therefore considers that ICAO paras. 5.3.17.16 and 5.3.17.16 (above) should be upgraded to the status of a Standard, changing "should" to "shall". **POL-STAT 1987** [Reaffirmed 2013]

STATUS AND DATE

TAXIWAY CENTRE LINE LIGHTS ON OTHER EXIT TAXIWAYS

Location

5.3.17.18 ***ICAO para. 5.3.17.18*** *recommends that taxiway centre line lights on exit taxiways other than rapid exit taxiways should commence at the point where the taxiway centre line marking begins to curve from the runway centre line, and follow the curved taxiway centre line marking at least to the point where the marking leaves the runway. The first light should be at least 60cm from any row of runway centre line lights, as shown in Figure 5-27.*

ICAO ANNEX 14 7TH EDITION

5.3.17.19 ***ICAO para. 5.3.17.19*** *recommends that the lights should be spaced at longitudinal intervals of not more than 7.5m.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

It is essential that the above provisions be complied with at aerodromes where take-offs and/or landings are conducted in visibility or RVR conditions of 350 metres or less.

POL-STAT 1987 [Reaffirmed 2013]

IFALPA therefore considers ICAO paras. 5.3.17.18 and 5.3.17.19 (above) should be upgraded to the status of a Standard, changing "should" to "shall" in both cases.

RUNWAY CLEARANCE AID

IFALPA POLICY

Purpose

Further new text should be added to Section 5.3.17 on this subject as given below. The following observations apply to this new text:

1. A colour-coded taxiway centre line lighting system is preferred to other methods (such as sign- boards, etc.) to denote the extremities of the critical areas after leaving the runway in low visibility. Green/grey and green/yellow centre line light combinations have contamination.

   POL-STAT [Reaffirmed 2013]

   Yellow also has the connotation of "caution" whilst the aircraft remains within the sensitive area. Yellow is considered to provide the best contrast with green, particularly under conditions of surface.

   POL-STAT [Reaffirmed 2013]

2. In order to provide a continuous indication to the pilot of these areas after leaving the runway centre line it is considered essential to ensure that the colour-coded taxiway centre line lights commence at the point of intersection with the runway centre line.

   POL-STAT [Reaffirmed 2013]

3. The recommendation for changing the beam direction of the yellow lights at the point where they reach the stop bars arises from the desirability of providing the pilot of an aircraft approaching the runway with an additional indication of penetration of the critical area.

   POL-STAT [Reaffirmed 2013]

The following new paragraphs should therefore be added:

STATUS AND DATE

"5.3.17.x The extent of the ILS sensitive area and obstacle limitation surface shall be indicated by the provision of alternate green and yellow taxiway centre line lights. These shall commence at the runway centre line and shall extend to that point on the taxiway where, when the pilot of the most critical aircraft can no longer see these lights because of the cockpit cut-off angle, the aircraft shall be clear of the ILS sensitive area or obstacle limitation surface, whichever is the greater."

DRAFT POLICY 1984 [Reaffirmed 2016]

"5.3.17.y Recommendation. - The alternating yellow taxiway centre line lights should be bi-directional between the runway centre line and the stop bars on the taxiway and unidirectional, showing yellow only in the direction of exit from the runway, between the stop bars and the point where they terminate in accordance with 5.3.16.15."

DRAFT POLICY 1984 [Reaffirmed 2016]

The following further policy is also required:

Specification - use of colour-coded taxiway centre lights

At locations equipped with centre line taxiway lights, it is IFALPA policy that this boundary be marked by colour-coding the centre line lights. However, no recommended practice has been established for locations not equipped with nor required to have centre line lights.

DRAFT POLICY 1985 [Reaffirmed 2016]

Current proposals under review include lighted signboards and colour-coded taxiway edge lights. Although IFALPA has not yet determined which aid would be the most satisfactory, it believes a requirement exists to establish a standardised marking for use as a runway clearance aid where taxiway centre line lights are not installed.

IFALPA therefore encourages the development and installation of a lighted visual aid to indicate the boundary of the ILS critical area/obstacle free zone for use as a runway clearance aid at locations not equipped with taxiway centre line lights.

STATUS AND DATE

A means is needed to allow that portion of the apron/taxiway structure, which is not under Air Traffic Services control to be easily identified by the pilot. The following policy requires the provision of yellow taxiway centre line lights to delineate the boundary where operations are either conducted under the control of a separate unit or are uncontrolled, as compared with the ATC authority, which is exercised on the manoeuvring area.

5.3.18 TAXIWAY EDGE LIGHTS

Application

5.3.18.1 ***ICAO para. 5.3.18.1*** *states that taxiway edge lights shall be provided at the edges of a runway turn pad, on a holding bay, de/anti-icing facility, apron, etc. intended for use at night and on a taxiway not provided with taxiway centre line lights and intended for use at night, except that taxiway edge lights need not be provided where, considering the nature of the operations, adequate guidance can be achieved by surface illumination or other means.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

Provision as an aid to low visibility operations

This text requires extension and amplification in order to meet the operational requirement and should be revised to read:

"5.3.18.1 Taxiway edge lights shall be provided at the edges of a runway turn pad on a holding bay, apron, etc. intended for use at night and during reduced visibility operations and on a taxiway not provided with taxiway centre line lights and intended for use at night, except that taxiway edge lights need not be provided where, considering the nature of the operations, the same or improved guidance is achieved by surface illumination or other means. Taxiways equipped with centre line lights in accordance with 5.3.16 shall be provided with edge lights in the following conditions:

1) When the aerodrome is located in an area where centre line lights could be obscured by snow and/or ice accumulation; and

2) When a need exists at a specific location to identify the physical edge of the pavement such as at critical curves or intersections."

POL-STAT 1985
[Reaffirmed 2013]

STATUS AND DATE

5.3.20 STOP BARS

5.3.20 ***ICAO para 5.3.20.1 states:*** *A stop bar shall be provided at every runway holding position serving a runway when it is intended that the runway will be used in runway visual range conditions less than a value of 350m, except where:*

a) appropriate aids and procedures are available to assist in preventing inadvertent incursions of aircraft and vehicles onto the runway; or

b) operational procedures exist to limit, in runway visual range conditions less than a value of 550m, the number of:

1) aircraft on the manoeuvring area to one at a time; and

2) vehicles on the manoeuvring area to the essential minimum.

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ICAO para 5.3.20.2 states: *A stop bar shall be provided at every runway holding position serving a runway when it is intended that the runway will be used in runway visual range conditions of values between 350m and 550m, except where:*

a) appropriate aids and procedures are available to assist in preventing inadvertent incursions of aircraft and vehicles onto the runway; or

b) operational procedures exist to limit, in runway visual range conditions less than a value of 550m, the number of:

1) aircraft on the manoeuvring area to one at a time; and

2) vehicles on the manoeuvring area to the essential minimum.

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA Policy 5.3.20.1

Replace the current ICAO text with the following:

Stop bars shall be used 24 hrs per day irrespective of the weather conditions — **POL-STAT 2010**

Stop bars shall be selectively switchable by the appropriate aerodrome controller. — **POL-STAT 2006** [Reaffirmed 2016]

Stop bars shall be installed at all aerodromes where a runway crossing is possible, and provided at every runway-holding position serving a runway, including non active runways. — **POL-STAT 2006** [Reaffirmed 2016]

Aircraft shall not cross red stop bars unless contingency measures are in force. Contingency measures should cover all cases where the stop bars or controls are unserviceable. — **POL-STAT 2006** [Reaffirmed 2016]

Note - Runway incursions may take place in all visibility or weather conditions. The provision of stop bars at runway holding positions and their use during the day or night form part of effective runway incursion prevention measures.

STATUS AND DATE

5.3.23 RUNWAY GUARD LIGHTS

ICAO Annex 14 Chapter 5 states — ***ICAO ANNEX 14 7TH EDITION***

5.3.23.4 Runway guard lights, Configuration A, shall be located at each side of the taxiway at a distance from the runway centre line not less than that specified for a take-off runway in Table 3-2.

5.3.23.5 Runway guard lights, Configuration B, shall be located across the taxiway at a distance from the runway centre line not less than that specified for a take-off runway in Table 3-2.

5.3.23.9 The light beam shall be unidirectional and aligned so as to be visible to the pilot of an aeroplane taxiing to the holding position.

IFALPA believes that the ICAO Policy needs to be amended to read as follows:

5.3.23.4 Runway guard lights, Configuration A, shall be located at each side of the taxiway, co-located in alignment with the marking of the corresponding runway holding position marking~~.~~; — **POL STAT 2011**

5.3.23.5 Runway guard lights, Configuration B, shall be located across the taxiway, parallel to and not more than 1m from the taxiway side of the corresponding runway holding position marking — **POL-STAT 2011**

5.3.23.9 The light beam shall be unidirectional and aligned so as to be visible to the pilot of an aeroplane taxiing to the holding position and operator of a vehicle approaching the holding position marking. Runway guard lights shall remain visible to pilots or drivers of approaching aircraft or vehicles. — **POL STAT 2011**

5.3.23.x If installed, runway guard lights shall be in use day and night at active holding position markings. — **POL STAT 2011**

Note- When there is more than one holding position marking at the same taxiway/runway intersection, runway guard lights and stopbars at non-active holding position markings shall be switched off**.**

5.3.27 AIRCRAFT STAND MANOEUVRING GUIDANCE LIGHTS

5.3.27.1 ***ICAO para. 5.3.27.1*** *recommends that aircraft stand manoeuvring guidance lights should be provided to facilitate the positioning of an aircraft on an aircraft stand on a paved apron or on a de/anti-icing facility intended for use in poor visibility conditions, unless adequate guidance is provided by other means.* — ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

The ICAO specifications for these lights as detailed in paras. 5.3.27.1 to 5.3.27.7 are satisfactory to IFALPA except that paras. 5.3.27.1, 5.3.27.4, 5.3.27.6 and 5.3.27.7, which are currently shown as Recommendations only, should be upgraded to the status of ICAO Standards, changing "should" to "shall" wherever it appears. — **POL-STAT 1987** [Reaffirmed 2013]

ADD the following new policies under Section 5.3.27.x: — **POL-STAT 2001 [**Reaffirmed 2011]

5.3.27.x EMERGENCY STOP COMPONENTS

STATUS AND DATE

Application

5.3.27.x1 Manual Emergency Stop – An emergency STOP button shall be installed to provide the stand operator, marshaller or safety officer/monitor the ability to signal the aircraft to stop immediately. The display shall enunciate STOP in flashing, red letters when the button is pushed.

Location

5.3.27.x.2 The emergency stop button shall be located to provide the person(s) monitoring docking a clear view of the aircraft and stand. This location should provide a clear view of the system display or a remote duplication of the display

5.3.19.x RUNWAY TURN PAD GUIDANCE LIGHTS

5.3.19.x Runway turn pad guidance lights at the portion leading off from the runway centre line shall be fixed lights showing green.

Note: See figure 5-19A for an illustration of the runway turn pad guidance lights.

Location

5.3.19.y Runway turn pad guidance lights shall commence at a point at least 60 m before the beginning of the turn pad guidance line curve, continue beyond the curve into the runway turn pad following the runway turn pad guidance line. The lights on that portion parallel to the runway centre line should always be at least 60 cm from any row of runway centre line lights, as shown in figure 5-20.

POL-STAT 2012

Where there are only runway markings, Runway turn pad lights should normally be located on the runway turn pad marking, except that they may be offset by not more than 30 cm where it is not practicable to locate them on the marking.

Note : Figure 5-20 referred to is in ICAO Annex 14, Chapter 5, page 76.

5.3.19.z Recommendation.- The lights should be spaced at longitudinal intervals of not more than 7.5 m.

Note : Research carried out to formulate these requirements are based on existing aircraft types. Further research in the future is necessary to include new aircraft types."

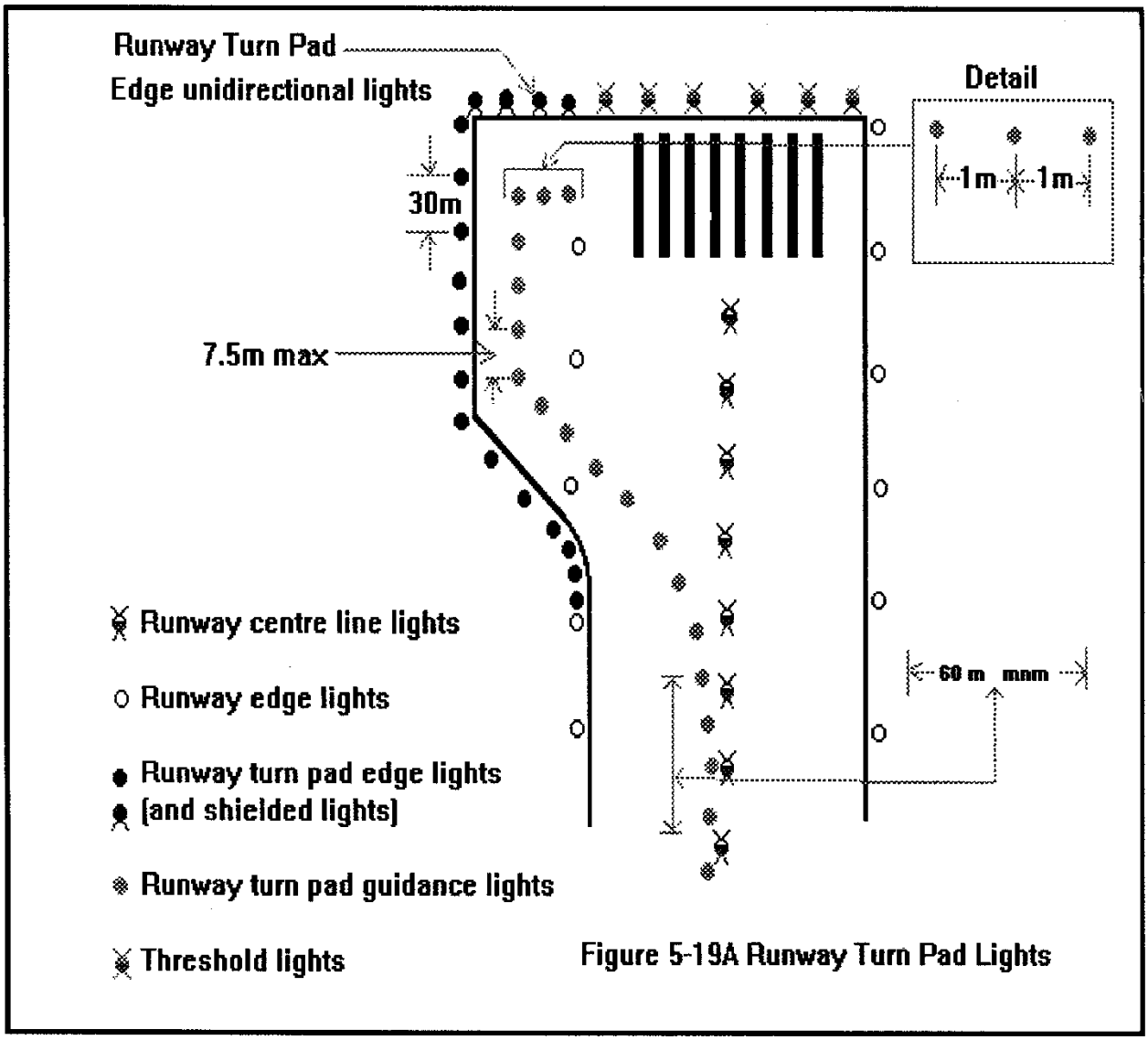

Figure 5-19A Runway Turn Pad Lights

STATUS AND DATE

IFALPA POLICY

ADD the following further new policies under section 5.3.18: **POL-STAT 1995** [Reaffirmed 2016]

"**5.3.19.y RUNWAY TURN PAD EDGE LIGHTS**

Application **POL-STAT 2012**

5.3.19.y.1 Runway turn pad edge lights shall be provided on a runway turn pad intended for use at night and/or low visibility conditions.

Note. - see 5.5.5 for taxiway edge markers.

Location

5.3.19.y.2 Recommendation:- Runway turn pad edge lights on a straight section of the runway turn pad should be spaced at uniform longitudinal intervals of not more than 30m. The lights on a curve should be spaced at intervals less than 30m so that a clear indication of the curve is provided.

5.3.19.y.3 Recommendation.- The lights should be located as near as practicable to the edges of the runway turn pad or outside the edges at a distance of not more than 3m .

Characteristics

5.3.19.y.4 Runway turn pad edge lights shall be fixed lights showing blue. The lights shall show up to at least 30° above the horizontal and at all angles in azimuth necessary to provide guidance to a pilot taxiing. The segment of the runway turn pad edge lights adjacent to the runway extremity shall be unidirectional."

5.4.3 INFORMATION SIGNS

Application

5.4.3.1 ***ICAO para. 5.4.3.1*** *states that an information sign shall be provided when there is an operational need to identify by a sign, a specific location or routing (direction or destination) information.* ***ICAO ANNEX 14 7TH EDITION***

5.4.3.2 ***ICAO para. 5.4.3.2*** *states information signs, shall include: direction signs, location signs, destination signs, runway exit signs, runway vacated signs and intersection take-off signs.*

IFALPA POLICY

5.4.3.x Runway Distance Remaining Signs

Application

5.4.3.x.1 Runway distance remaining signs shall be used to provide distance remaining information to pilots during takeoff and landing operations. **POL-STAT 2012**

STATUS AND DATE

Declared distances do not affect the location of runway distance remaining sings

5.4.3.x.2 The Signs are to be located along the side(s) of the runway, 8m-15m from the edge of the runway and in increments of 305 metres. The information will display the distance remaining in descending numbers corresponding to each increment of 305 metres: e.g. “8”, “7”, ”6”, “5”, “4”, etc. Tolerances on sign placement shall be +/- 15 meters; a sign may be omitted if it conflicts with other signage or taxiways. **POL-STAT 2012** [REAFFIRMED 2017]

Characteristics

5.4.3.x.3 Runway Distance Remaining Signs shall consist of white characters on a black background. **POL-STAT 2012**

5.4.3.x.4 Signs shall be double faced, and installed in tandem on both sides of runway.
Note: Tolerance for the last sign may be increased to achieve the tandem spacing as shown in fig.1

5.4.3.x.5 The sign face shall have a vertical dimension of not less than 0.8m, but not greater than 1.1m and comply with ICAO Annex 14 Vol 1 5.4.1.7

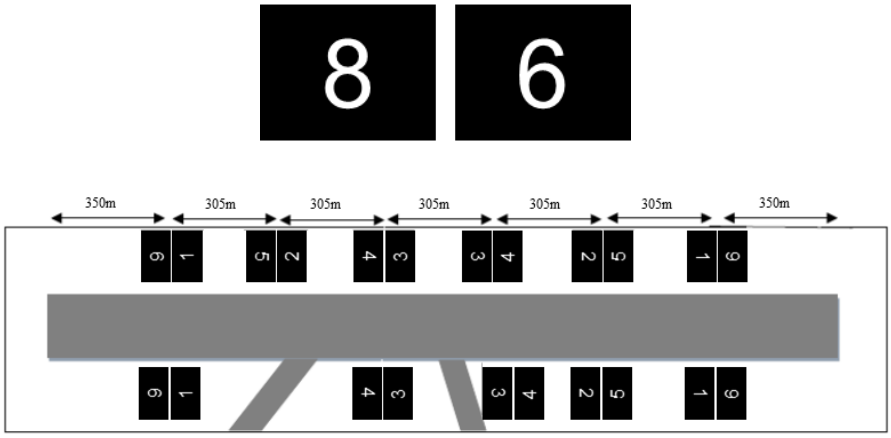

Fig 1 Example of a 2200 meter runway

5.4.3.11 ICAO para. 5.4.3.11 states that, “*A location sign shall be provided in conjunction with a direction sign, except that it may be omitted where an aeronautical study indicates that it is not needed.*” ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

IFALPA considers that signage to indicate the presence of installed arresting systems should be mandatory. And that the following paragraph should be added: **POL-STAT 2015**

5.4.3.xx A combined location and direction sign shall be provided to indicate the presence of an installed arresting system(s) on one or both ends of the runway. The signs shall be positioned as to be visible to the pilot prior to taxiing onto the runway.

STATUS AND DATE

5.4.3 INFORMATION SIGNS

5.4.3.35 ***ICAO para. 5.4.3.35*** *states that, "A taxiway shall be identified by a designator comprising a letter, letters or a combination of a letter or letters followed by a number* — ***ICAO ANNEX 14 7TH EDITION***

5.4.3.36 ***ICAO para 5.4.3.36*** *recommends that, "when designating taxiways, the use of the letters I, O or X and the use of the words inner and outer should be avoided wherever possible to avoid confusion with the numerals 1,0 and the closed marking.* — ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

Taxiway related incidents and accidents have increased significantly during the last few years. The majority of them have happened in a complex taxiway environment, where illogically designated taxiways have been used or where taxiways have similar or the same designations in different parts of the airport. Also misunderstanding of taxi clearances has led to runway incursions and accidents. To reduce such incidents and accidents all taxiways and especially taxiways that enter and exit the runway should be instinctive and logical to the pilots, air traffic controllers and vehicle drivers. That requires logical routings with logical nomenclature.

Delete ICAO para 5.4.3.36 & add new IFALPA policy to para 5.4.3.35 as follows: — **POL-STAT 2008**

Taxiways serving primary traffic routes shall be restricted to one letter only. E.g. A (alpha), B (bravo), C (Charlie).

Designation of the taxiways shall start at one end of the airport and follow a logical sequence to the opposite end, e.g. east to west or north to south.

The use of the letters I (India), O (Oscar) and Z (Zulu) shall be avoided as they could be mistaken with the numbers 1, 0 and 2.

The use of the letter X (Xray) shall not be used as it could be mistaken for a closed taxiway.

Taxiway sequence numbering shall start from 1 not 0.

Different taxiways on the same aerodrome shall not have the same or similar designations.

Taxiways crossing a runway should be avoided, where this is not possible, the taxiways shall have different names on each side of the runway. Note: Whenever possible the letter and number shall be changed (e.g. from K5 to J4).

Those taxiways that connect to the runway shall have an alpha numeric designation (e.g. A1, A2, A3…A12). The numbering shall start at one end of the runway and follow a logical sequence to the other end (not leaving out any numbers or "jumping" back and forth in numbering).

Connecting taxiways (links between major traffic routes) shall be designated in such a way that they cannot be mistaken as runway entrances/exits.

STATUS AND DATE

The use of standard taxi routes is recommended to reduce congestion on ground frequencies and to make taxi clearances predictable.

Holding Points shall not have designations that could be mistaken for taxiways.

Intermediate holding points shall be designated by the word "spot" and then the number (e.g. Spot 7).

Apron stand designators shall not conflict with any other taxiway designators at the airport.

5.4.6 AIRCRAFT STAND IDENTIFICATION SIGNS

Application

ICAO para 5.4.6.1 *Recommendation.-An aircraft stand identification marking should be supplemented with an aircraft stand identification sign where feasible.*

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Location

ICAO para 5.4.6.2 *Recommendation.- An aircraft stand identification sign should be located so as to be clearly visible from the cockpit of an aircraft prior to entering the aircraft stand.*

ICAO ANNEX 14 7TH EDITION

Characteristics

ICAO para 5.4.6.3 *Recommendation.- An aircraft stand identification sign should consist of an inscription in black on a yellow background.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that this provision should be expanded to include the following proposed revision to ICAO Annex 14:

5.4.6 Aircraft Stand Identification Signs

Application

5.4.6.1 An aircraft stand identification sign shall be provided for all aircraft stands where feasible.

POL-STAT 2004 [Reaffirmed 2014]

Location

5.4.6.2 An aircraft stand identification sign shall be located:

a) So pilots are able to visually acquire the sign and easily interpret the inscription from the distance at which pilots are reasonably expected to attempt visual acquisition but not later than a location well before manoeuvring to the stand must be initiated; and

POL-STAT 2004 [Reaffirmed 2014]

b) So the sign face is perpendicular to and centred (or nearly so where centring is not possible) on the centreline upon which an aircraft conducts final progress to the stop point; and

POL-STAT 2004 [Reaffirmed 2014]

c) At a height that is compatible with the eye height of pilots utilizing the stand.

POL-STAT 2004 [Reaffirmed 2014]

STATUS AND DATE

Characteristics

5.4.6.3 An aircraft stand identification sign shall consist of:

a) An inscription in black on a yellow background; **POL-STAT 2004** [Reaffirmed 2014]

b) A character height suitable to meet the requirement of 5.4.5.2 and in any case not less than .8m; **POL-STAT 2004** [Reaffirmed 2014]

c) A distance between outer most characters and the edge of the black background suitable to provide sufficient contrast and readability of the characters and in any case not less than .25m; and **POL-STAT 2004** [Reaffirmed 2014]

d) Internal illumination when intended for use during hours of darkness or other low ambient light conditions. **POL-STAT 2004** [Reaffirmed 2014]

5.4.x Apron Boundary Information Signs

IFALPA POLICY

Application

A means is needed to allow that portion of the apron/ taxiway structure, which is not under Air Traffic Services control to be easily identified by the pilot. The following policy requires the provision of a standard marking to delineate the boundary where operations are either conducted under the control of a separate unit or are uncontrolled, as compared with the ATC authority, which is exercised on the manoeuvring area.

Application **POL-STAT 2004** [Reaffirmed 2014]

5.4.x.1 Apron boundary information signs shall be to delineate movement areas under ATS control from non-movement areas under control of an apron control facility (ATS or otherwise) or an uncontrolled area.

Location **POL-STAT 2004** [Reaffirmed 2014]

5.4. x.2 Apron boundary information signs shall be placed along taxiways that transverse the apron boundary marking approximately abeam the apron boundary marking.

Characteristics **POL-STAT 2004** [Reaffirmed 2014]

5.4.x.3 Apron boundary information signs shall consist of an information sign inscribed as shown below. The inscription in figure 5-Y shall be seen by aircraft entering the apron and the inscription in figure 5-X shall be seen by aircraft exiting the apron.

FIGURE 5-Y

APRON (frequency)

FIGURE 5-X

ATC (frequency)

STATUS AND DATE

Where Air Traffic Services provide apron control, the frequency for that control should be specified on the signboard. Otherwise, the board should be annotated (UNCONTROLLED)

5.4.x.4 The apron boundary shall be highlighted by an appropriate information sign where feasible or appropriate information marking where signs are not feasible.

POL-STAT 2004
[Reaffirmed 2014]

STATUS AND DATE

CHAPTER 6 VISUAL AIDS FOR DENOTING OBSTACLES

6.1 OBJECTS TO BE MARKED AND/OR LIGHTED

6.1.4 ***ICAO para. 6.1.4*** *recommends that a fixed obstacle that extends above a take-off climb surface within 3000m of the inner edge of the take-off climb surface should be marked and, if the runway is used at night, lighted, except that:*

ICAO ANNEX 14 7TH EDITION

a) such marking and lighting may be omitted when the obstacle is shielded by another fixed obstacle;

b) the marking may be omitted when the obstacle is lighted by medium-intensity obstacle lights, Type A, by day and its height above the level of the surrounding ground does not exceed 150m;

c) the marking may be omitted when the obstacle is lighted by high-intensity obstacle lights by day; and

d) the lighting may be omitted where the obstacle is a lighthouse and an aeronautical study indicates the lighthouse light to be sufficient.

IFALPA POLICY

IFALPA considers that para. 6.1.4 should be upgraded to the status of a Standard, by deleting "RECOMMENDATION" and changing "should" to "shall".

POL-STAT 1981 [Reaffirmed 2011]

6.1.5 ***ICAO para. 6.1.5*** *recommends that a fixed object, other than an obstacle, adjacent to a take-off climb surface should be marked and, if the runway is used at night, lighted if such marking and lighting is considered necessary to ensure its avoidance, except that the marking may be omitted when:*

ICAO ANNEX 14 7TH EDITION

a) the object is lighted by medium-intensity obstacle lights, Type A, by day and its height above the level of the surrounding ground does not exceed 150m; or

b) *the object is lighted by high-intensity obstacle lights by day.*

IFALPA POLICY

IFALPA considers that this Recommended Practice should be deleted and be replaced with the following Standard:

POL-STAT 1981 [Reaffirmed 2011]

"6.1.5 Where take-off ceiling and visibility minima are specified for a runway, critical obstacles shall be marked and, if the runway is used at night, lighted, except where it can be shown that the obstacle is not a hazard to safe operation."

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CHAPTER 7 VISUAL AIDS FOR DENOTING RESTRICTED USE AREAS

7.2 Non-load-bearing surfaces

Application

ICAO para 7.2.1 *states that shoulders for taxiways, runway turn pads, holding bays and aprons and other non-load-bearing surfaces which cannot readily be distinguished from load-bearing surfaces and which, if used by aircraft, might result in damage to the aircraft shall have the boundary between such areas and the load-bearing surface marked by a taxi side stripe marking.*

ICAO ANNEX 14 7TH EDITION

Location

ICAO para 7.2.2 *recommends that a taxi side stripe marking should be placed along the edge of the load-bearing pavement, with the outer edge of the marking approximately on the edge of the load-bearing pavement.*

ICAO ANNEX 14 7TH EDITION

Characteristics

ICAO para 7.2.3 *recommends that a taxi side strip marking should consist of a pair of solid lines, each 15 cm wide and spaced 15 cm apart and the same colour as the taxiway centre line marking.*

ICAO ANNEX 14 7TH EDITION

Note: *Guidance on providing additional transverse stripes at an intersection or a small area on the apron is given in the Aerodrome Design Manual, Pt 4.*

IFALPA POLICY

POL-STAT 2000
[Reaffirmed 2011]

Previously the above ICAO policy had addressed only the case of non-load bearing taxiway shoulder as shown in 7.2.1, the proposed IFALPA policy has a wider application including the case of non-load-bearing surfaces as shown here. Paragraphs 7.2.2 Location and 7.2.3 Characteristics are therefore proposed to be deleted as the matter is dealt with in Chapter 5, paragraphs 5.2.8.x.2 and 5.2.8.x.3. The two original notes are maintained and re-arranged below a new additional note, which refers to the taxiway side stripe marking in Chapter 5 of the Annex.

7.2 Non-load-bearing surfaces (amended)
Application

7.2.1 Shoulders for taxiways, holding bays and aprons and other non-load-bearing surfaces, which cannot readily be distinguished from load-bearing surfaces and which, if used by aircraft, might result in damage to the aircraft shall have the boundary between such areas and the load-bearing surface marked by a taxiway side stripe marking.

Note 1.- The location and characteristics taxiway side stripe markings are specified in Chapter 5, 5.2.8.x.

Note 2.- The markings of runway sides is specified in 5.2.7.

Note 3.- Guidance on providing additional transverse stripes at an intersection or a small area on the apron is given in the Aerodrome Design Manual, Part 4.

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PRE-THRESHOLD AREA

ICAO ANNEX 14, VOL 1, CHAPTER 7

ICAO ANNEX 14 7TH EDITION

I*CAO 7.3.1 Recommends — When the surface before a threshold is paved and exceeds 60 m in length and is not suitable for normal use by aircraft, the entire length before the threshold should be marked with a chevron marking.*

IFALPA POLICY **POL-STAT 2015**

IFALPA recommends that an installed arresting bed should be visually conspicuous to the pilot from the cockpit and recommends the following paragraph be added:

7.3.x When the surface before a threshold contains an installed arresting system, in addition to having chevron markings, the remaining arresting system surface should be of conspicuous colour that is differentiated from the runway surface, runway markings and chevrons, thus making the arresting system easily identifiable.

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CHAPTER 8 ELECTRICAL SYSTEMS

8.1 SECONDARY POWER SUPPLY

POL-STAT 2000 [REAFFIRMED 2011]

Because the lack of provision of secondary power for airport navigation systems can produce disastrous results, the entirety of ICAO Annex 14, Chapter 8, Section 8.1 should be upgraded to the status of Standard

TERRAIN AVOIDANCE

POL-STAT 2004 [REAFFIRMED 2011]

Authorities have designed and approved operations into airports where terrain avoidance procedures rely heavily on airport lights being available. These lights include approach, runway, circling and departure where the departure procedure is dependent on lights outside the airport. Since the safety of the operation rests heavily on these lights being available to the pilots at all times, it is recommended that a new para 8.1.x to Section 8.1 as follows:

8.1.x "IFALPA believes that where obstacles, hazardous or precipitous terrain exists and avoidance procedures are based on visual aids, secondary power supplies should be available. Furthermore, the switchover times should be reduced according to the local conditions, from the ICAO requirements for CAT I and non-precision approaches with reference to table 8-1."

POL-STAT 2006 [REAFFIRMED 2011]

Note: IFALPA believes that hazardous or precipitous terrain is an area where the nature of the terrain is of a type that creates additional risks to air navigation. These may include, but are not limited to, airports at high elevation, airports located in steep sided valleys, airports co-located to large bodies of water or to remote areas with little or no off-airport ambient lighting.

8.1. xx During night operations to instrument runways, failure of an airport's electrical power supply is critical for an aircraft during final approach and landing. IFALPA believes that at least the Visual Approach Slope Indicators, Runway Threshold Lights, Runway Edge Lights and the Runway End Lights should have a 1 (one) second switchover time as a Standard.

POL-STAT 2006 [REAFFIRMED 2011]

8.1.y At some locations the departure procedures are based on light systems/reference lights outside the airport. This includes go-around procedures after passage of the missed approach point where the departure procedure has to be used.

POL-STAT 2004 [REAFFIRMED 2011]

8.1.z Where departure procedures initially have a visual segment where pilots are dependent on lights outside the airport for terrain avoidance, these lights shall be included in a secondary power supply system.

POL-STAT 2004 [REAFFIRMED 2011]

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8.3 MONITORING

8.3.1 ***ICAO para 8.3.1*** *recommends that a system of monitoring should be employed to indicate the operational status of the lighting system..*

ICAO ANNEX 14 7TH EDITION

8.3.4 ***ICAO para 8.3.4*** *recommends that for a runway meant for use in runway visual range conditions less than a value of 550 m, the lighting systems detailed in Table 8-1 should be monitored so as to provide an immediate indication when the serviceability level of any element falls below the minimum serviceability level specified in 10.5.7 to 10.5.11, as appropriate. This information should be immediately relayed to the maintenance crew.*

8.3.5 ***ICAO para 8.3.5*** *recommends that for a runway meant for use in runway visual range conditions less than a value of 550 m, the lighting system detailed in Table 8-1 should be monitored so as to provide an immediate indication when the serviceability level of any element falls below the minimum level specified by the appropriate authority below which operations should not continue. This information should be automatically relayed to the air traffic services unit and displayed in a prominent position.*

Note – Guidance on air traffic control interface and visual aids monitoring is included in the Aerodrome Design Manual (Doc 9157), Part 5.

IFALPA POLICY

IFALPA therefore considers that ICAO paras. 8.3.1, 8.3.3 and 8.3.4 (above) should be upgraded to the status of a Standard, by deleting "RECOMMENDATION" and changing "should" to "shall" wherever it appears.

POL-STAT 1987 [REAFFIRMED 2011]

RECORDING OF LIGHTING SYSTEMS

The reason for keeping and making available records of intensity control, as proposed in the following policy, is so as to facilitate accident enquiries associated with approaches while the lights are in use. The tower voice record is complementary to this requirement.

Therefore a new paragraph should be added to follow existing para. 8.3.1 reading:

"8.3.1.x A system of recording the correct functioning of all elements of the approach and runway lighting systems shall be employed. The system shall include a record of the intensity control settings, where applicable. The records shall be preserved for the periods applicable to voice communications as specified in Annex 10, Vol. II."

POL-STAT 1985 [REAFFIRMED 2011]

REPORTING

The following new paragraph is also required:

"8.3.1.y Member Associations should request their members to report promptly any light outages observed by them

POL-STAT 1985 [REAFFIRMED 2011]

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CHAPTER 9 – AERODROME OPERATIONAL SERVICES, EQUIPMENT AND INSTALLATIONS

9.1 AERODROME EMERGENCY PLANNING

GENERAL

ICAO ANNEX 14 7TH EDITION

Introductory Note ***ICAO Introductory Note*** *explains that aerodrome emergency planning is the process of preparing an aerodrome to cope with an emergency occurring at the aerodrome or in its vicinity. The objective of aerodrome emergency planning is to minimise the effects of an emergency, particularly in respect of saving lives and maintaining aircraft operations. The aerodrome emergency plan sets forth the procedures for co-ordinating the response of different aerodrome agencies (or services) and of those agencies in the surrounding community that could be of assistance in responding to the emergency. Guidance material to assist the appropriate authority in establishing aerodrome emergency planning is given in the ICAO Airport Services Manual, Part 7.*

Then follow the three Standards of paras. 9.1.1, 9.1.2 and 9.1.3 addressing respectively the establishment at all aerodromes of an emergency plan, the co-ordination of the actions to be taken and the co-ordination requirements for all existing agencies where participation in the response to an emergency is considered desirable. A Standard is provided in para. 9.1.12 which requires procedures to be established for testing the plan and reviewing the results in order to improve its effectiveness. An additional Note explains that the plan includes all participating agencies and associated equipment. A further Standard in para. 9.1.13 requires that the plan shall be tested by conducting a full-scale aerodrome emergency exercise at intervals not exceeding two years with partial exercises in the intervening years.

The remainder of the ICAO provisions are presented in the form of Recommended Practices. Paragraphs 9.1.4 and 9.1.5 address further aspects of basic content of the plan and role of the various participating agencies, paragraphs 9.1.7 to 9.1.10 detail the requirements for an emergency operations centre and command post, paragraph 9.1.11 refers to the need for an adequate communication system to be provided.

IFALPA POLICY

POL-STAT 1981
[Reaffirmed 2013]

In accordance with its desire to seek commonality of the ICAO provisions with the Standards of the National Fire Protection Association (NFPA Document 403), IFALPA considers that the Recommended Practices in Section 9.1 should be upgraded to the status of ICAO Standards, without change of text, by deleting "Recommendation" and changing "should" to "shall" wherever it appears.

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RESCUE IN WATER

IFALPA POLICY

A new section 9.X should be added to Chapter 9 as follows:

9.x.1 **Recommendation.-** Rescue equipment should be maintained and located so that it can be brought into action quickly and effectively within a pre-determined response time for deployment of flotation equipment.

DRAFT POLICY 1997 [Reaffirmed 2013]

Note.- Public or private organisations, suitably located and equipped, may be designated to provide or augment the specialist rescue equipment. Additional guidance on planning the rescue facilities in water is available in Chapter 13 of the ***ICAO*** **Airport Services Manual,** *Part I*—**Rescue and Fire Fighting** *(Doc 9137).*

IFALPA POLICY

Note 1 should be deleted as it is superseded by new sub-paras. 9.2.1.x and 9.2.1.y below, and Note 2 should also be deleted as it is superseded by the new second sentence of para. 9.2.1 above. A new Note should be inserted reading:

"Note.- For guidance on the detailed specifications pertaining to water rescue facilities, see ICAO Annex 14, Volume I, Attachment A, paras. 17.3.2 to 17.3.5, inclusive, and also the ICAO Airport Services Manual, Part I, Chapter 5, para. 5.2.5."

IFALPA affirms its belief that the provision of an adequate Rescue and Fire Fighting Service requires that sufficient manpower is available to manoeuvre the fire truck and to operate its turret and its rescue equipment simultaneously in order to effect the rescue of the passengers and crew.

Note: Full compliance with the provisions of ICAO Annex 14, Volume I, Chapter 9, para. 9.2.1 requires that a rescue capability in addition to fire fighting be provided.

A number of years ago, ICAO changed the terminology CFR (Crash Fire Rescue) to RFF (Rescue and Fire Fighting) in order to increase the emphasis on **Rescue**, as the saving of lives is the primary objective of an airport Fire Service. It was recognised that a crash need not occur in order to experience an aircraft fire.

A pre-requisite for rescue is the need for fire control and subsequent maintenance of the security of the potential fire ground while rescue is affected. Under normal conditions an evacuation would be initiated by the flight crew; however, possible incapacitation of the flight crew and/or passengers requires the immediate intervention of the airport fire fighters to commence the rescue of all occupants.

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With the advent of the RFF vehicle that can be driven and operated by one fire fighter, this one man is required to man his vehicle and therefore is not available for rescue. Fire fighters additional to this driver/operator are required to operate hand hose lines, ladders, forcible entry tools and specialised rescue equipment in order to initiate the immediate removal of injured survivors from the danger area.

Entry into burning aircraft has been required in a number of recent accidents and this can only be accomplished safely by trained professional fire fighters. They must be readily available to ride the RFF vehicle at the time of the alarm, as recommended in ICAO Annex 14, Volume I, 9.2.27.
Two new sub-paragraphs to 9.2.1 should be added as under:

"9.2.1.x The licensing authority of the State shall be responsible for the provision of the rescue and fire fighting service. The licensing authority shall also be responsible for the proficiency and maintenance of the rescue and fire fighting service. When the rescue and the fire fighting service is downgraded to a lower category than required at that aerodrome, or is completely withdrawn, the licensing authority of the State of aerodrome shall be responsible for the prevention of operation of any aeroplane for which the appropriate minimum category of rescue and fire fighting service is not available".

POL-STAT 1987
[Reaffirmed 2016]

"9.2.1.y The licensing authority shall demonstrate its compliance with the provisions of the ICAO Training Manual, Doc. 7192 AN/857 and also its responsibilities detailed in the ICAO Airport Services Manual, Part I, Chapters 10 and 13."

POL-STAT 1991
[Reaffirmed 2016]

Add two further new sub-paragraphs to 9.2.1 to read as follows:

"9.2.1.z Regardless of the functional control of RFF services on the aerodrome, a high degree of mutual aid shall be prearranged between such services on aerodromes and any off-airport fire or rescue agencies serving the environs of the aerodrome."

POL-STAT 1991
[Reaffirmed 2016]

"9.2.1.xx The aircraft operator shall ensure that provisions have been made for the security of the aircraft until such time as a legally appointed accident investigation authority assumes responsibility. The aerodrome manager or authority having jurisdiction may assist or assume the authority in the absence of the aircraft operator."

POL-STAT 1991
[Reaffirmed 2016]

The amendments required can be summarised as follows:

Revise para. 9.2.1 as shown above. DELETE the two existing Notes and SUBSTITUTE the new Note given above. ADD the sub-paras. 9.2.1.x, 9,2.1.y, 9.1.2.z and 9.1.2.xx as shown above.

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LEVEL OF PROTECTION TO BE PROVIDED

9.2.3 ***ICAO para. 9.2.3*** *states that the level of protection provided at an aerodrome for rescue and fire fighting shall be appropriate to the aerodrome category determined using the principles in 9.2.5 and 9.2.6, except that, where the number of movements of the aeroplanes in the highest category normally using the aerodrome is less than 700 in the busiest consecutive three months, the level of protection provided shall be not less than one category below the determined category.*

Note.— Either a take-off or a landing constitutes a movement.

ICAO ANNEX 14 7TH EDITION

9.2.4 ***ICAO para 9.2.4*** *recommends that the level of protection provided at an aerodrome for rescue and fire fighting should be equal to the aerodrome category determined using the principles in 9.2.5 and 9.2.6.*

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9.2.5 ***ICAO para 9.2.5*** *states that the aerodrome category shall be determined from Table 9-1 and shall be based on the longest aeroplanes normally using the aerodrome and their fuselage width.*

Note.— To categorize the aeroplanes using the aerodrome, first evaluate their overall length and second, their fuselage width.

9.2.6 ***ICAO para 9.2.6*** *states that if, after selecting the category appropriate to the longest aeroplane's overall length, that aeroplane's fuselage width is greater than the maximum width in Table 9-1, column 3, for that category, then the category for that aeroplane shall actually be one category higher.*

Note 1.— See guidance in the Airport Services Manual *(Doc 9137), Part 1, for categorizing aerodromes, including those for all-cargo aircraft operations, for rescue and fire fighting purposes.*

IFALPA POLICY

Existing ICAO para. 9.2.3 is deficient in that it allows a reduction of the extinguishing agent quantities based on the number of aeroplane movements in addition to aeroplane dimensions. This is clearly in deference to those airports, which claim to be unable to provide a complete firefighting service because of the high cost. This is not acceptable to IFALPA, which considers that extinguishing agent quantities should be determined solely on the basis of the potential fire area.

This would be satisfied by a requirement that the aerodrome category for the level of protection provided should be based only on the dimensions of the aeroplanes using the aerodrome. IFALPA does not accept the concept of the so-called "remission factor" which allows the RFF service capability to be reduced below that required by the largest aeroplane type using the aerodrome.

Accordingly, para. 9.2.3 should be revised to read as follows and then be upgraded to the status of a Standard:

POL-STAT 1991
[Reaffirmed 2013]

"9.2.3 The level of protection to be provided at an aerodrome shall be determined based on the dimensions of the largest aeroplanes using the aerodrome. The aerodrome category for rescue and fire fighting shall be determined in accordance with Table 9-1."

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See also IFALPA Annex 14, Volume I, Chapter 2, para. 2.11 and Attachment A, para. 17.2.1.

Note. It is believed that when the tables for the levels of protection required were drawn up, no account was taken of the presence of dangerous goods on board the aircraft. The amount of dangerous goods carried both in the cargo holds and the passenger compartment has been increasing and is expected to continue to increase. Therefore, in the event of an accident the requirement for speedy evacuation and fire suppression assumes greater importance in order to protect the passengers and crew from the additional hazards caused by the presence of dangerous goods (toxic fumes, explosion, exposure to radiation, etc.).

IMPLEMENTATION OBJECTIVES

With regard to para. 9.2.3:

POL-STAT 1995
[Reaffirmed 2013]

1. Member Associations at national level should attempt to ensure that RFF facilities at aerodromes within their State are provided without any reference to the so-called remission factor.

2. If the authorities fail to accomplish this, Member Associations should consider a reduction or cancellation of operations.

3. Member Associations should attempt to ensure, by legislation if possible, that operations are not authorised by either an operator and/or licensing authority unless both destination and planned alternate aerodromes provide RFF facilities applicable to the aeroplane type as per Annex 14, Volume I, Chapter 9.

4. Concurrently with the above, Member Associations and IFALPA should consider the advisability of approaching the News Media, Aviation Insurance Companies, Air Travellers Associations, Safety Organisations, Consumer Organisations, etc. in order to acquaint them with the present unacceptable deficiencies in this area.

5. Member Associations should bring to the attention of their pilot members the possible consequences of operations to aerodromes where the level of protection is less than that recommended for their aeroplane type, particularly in the case of wide-bodied aeroplane types where the use of the remission factor means that the RFF facilities are seriously deficient.

6. Member Associations at a National level and Regional Vice Presidents at a Regional level are to ascertain the SAR/RFF capability for each international airport and when the last training exercise was completed. When the category available does not meet the ICAO Standards and/or the training exercises have not occurred within the required time period that information should be reported to the IFALPA Secretariat.

RESOLUTION 2002

[REAFFIRMED 2018]

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9.2.7 ***ICAO para. 9.2.7*** *states that during anticipated periods of reduced activity, the level of protection available shall be no less than that needed for the highest category of aeroplane planned to use the aerodrome during that time irrespective of the number of movements.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

IFALPA considers that this Standard is inappropriate and should be amended. The aerodrome category should always be maintained at its declared level irrespective of occasional reductions in the level of traffic movements of the largest aeroplanes that normally use that aerodrome. **POL-STAT 1993** [Reaffirmed 2016]

For completeness, IFALPA Table 9-1 is reproduced below:

ICAO Table 9-1 - Aerodrome category for rescue and fire fighting

Aerodrome category	Aeroplane over-all length	Maximum fuselage width
(1)	(2)	(3)
1	0 m up to but not including 9 m	2 m
2	9 m up to but not including 12 m	2 m
3	12 m up to but not including 18 m	3 m
4	18 m up to but not including 24 m	4 m
5	24 m up to but not including 28 m	4 m
6	28 m up to but not including 39 m	5 m
7	39 m up to but not including 49 m	5 m
8	49 m up to but not including 61 m	7 m
9	61 m up to but not including 76 m	7 m
10	76 m up to but not including 90 m	8 m

EXTINGUISHING AGENTS

9.2.8 ***ICAO Para. 9.2.8*** *recommends that both principal and complementary agents should normally be provided at an aerodrome. An appended Note states that descriptions of the agents may be found in the Airports Services Manual (Doc 9137), Part 1.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

IFALPA considers that ICAO para. 9.2.8 should be upgraded to the status of a Standard. **POL-STAT 1991** [Reaffirmed 2016]

9.2.9 ***ICAO para. 9.2.9*** *recommends that the principal extinguishing agent should be:* ***ICAO ANNEX 14 7TH EDITION***

a) a foam meeting the minimum performance Level A; or

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b) a foam meeting the minimum performance Level B; or

c) a foam meeting the minimum performance level C; or

d) a combination of these agents;

except that the principal extinguishing agent for aerodromes in categories 1 to 3 should preferably meet the minimum performance Level B.

There is a Note which states that information on the required physical properties and fire extinguishing performance criteria needed for a foam to achieve an acceptable performance level A or B rating is given in the Airport Services Manual (Doc 9137), Part 1.

IFALPA POLICY

IFALPA considers that ICAO para. 9.2.9 should be upgraded to the status of a Standard. **POL-STAT 1991** [Reaffirmed 2016]

In addition, the following text should be added to para 9.2.9:

"9.2.9.x All foam concentrates shall be approved or listed based on the following performance test requirements. **POL-STAT 1994** [Reaffirmed 2016]

(i) Performance level B foams such as aqueous film forming foams (AFFF) shall meet the applicable fire extinguishing and the burnback performance requirements for the 50 sq ft (4.6m^2) fire test in accordance with Military Specification MIL-F-24385, 7 January 1994.

(ii) Performance level A foams such as film forming fluoroprotein foam (FFFP), protein foam (P) and fluoroprotein foam (FP) agents shall meet the applicable fire extinguishing and burnback performance requirements of Underwriters Laboratories Inc. Standard UL-162 (Type 3 application), July 6 1993."

COMPLEMENTARY AGENTS

9.2.10 ***ICAO para. 9.2.10*** *recommends that the complementary extinguishing agent should be a dry chemical powder suitable for extinguishing hydrocarbon fires.* ***ICAO ANNEX 14 7TH EDITION***

Note 1 to this paragraph advises than when selecting dry chemical powders for use with foam, care must be exercised to ensure compatibility.

Note 2 advises that alternate complementary agents having equivalent fire fighting capability may be utilized. Additional information on extinguishing agents is given in the Airport Services Manual, Part 1.

IFALPA POLICY

IFALPA considers that para. 9.2.10 should be amended as follows and upgraded to the status of a Standard **POL-STAT 1991** [Reaffirmed 2016]

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"9.2.10 Extinguishing agents equivalent to or better than the following shall be available for aircraft fire fighting:
a) Potassium bicarbonate dry chemical; or
b) Halon 1211."

9.2.11 ***ICAO para. 9.2.11*** *states that the amounts of water for foam production and the complementary agents to be provided on the rescue and fire fighting vehicles shall be in accordance with aerodrome category determined under 9.2.3, 9.2.4, 9.2.5, 9.2.6, and Table 9-2, except that for aerodrome categories 1 and 2 up to 100 per cent of the water may be substituted with complementary agent.*

ICAO ANNEX 14 7TH EDITION

For the purpose of agent substitution, 1 kg of complementary agent shall be taken as equivalent to 1.0 L of water for production of a foam meeting performance level A.

Note 1 advises that the amounts of water specified for foam production are predicated on an application rate of 8.2 L/min/m^2 for a foam meeting performance level A and 5.5 L/min/m^2 for a foam meeting performance level B.

Note 2 advises that when any other complementary agent is used, the substitution ratios need to be checked.

IFALPA POLICY

IFALPA believes the minimum amounts determined under Table 9-2 should not be modified with respect to the aerodrome category. Consequently, it is considered that ICAO para. 9.2.11 should be amended to reflect this.

DRAFT POLICY 1991 [Reaffirmed 2016]

Table 9-2 Minimum usable amounts of extinguishing agents.

POL-STAT 1993 [Reaffirmed 2016]

	Foam meeting performance Level A		**Foam meeting performance Level B**	
Aerodrome category	Water (L)	Discharge rate foam solution/minute (L)	Water (L)	Discharge rate form solution/minute (L)
1	(2)	(3)	(4)	(5)
1	350	350	250 (230)	230
2	1000	800	670	550
3	2900 (1800)	1300 (1270)	2300 (1200)	900
4	2900 (1800)	1300	4500 (2400)	1800
5	5700 (3600)	2600	10200 (5400)	3000
6	13000 (8100)	4650 (4500)	13000 (7900)	4000
7	17200 (11800)	6138 (6000)	17200 (12100)	5500 (5300)
8	23300 (18200)	8135 (7900)	22900 (18200)	7200
9	31600 (27300)	10800	34000 (24300)	9000
10	46200 (36400)	13560 (13500)	46200 (32300)	11700 (11200)
	69300 (48200)	17400 (16600)		

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Secretariat Note: The numbers in parenthesis indicate the original ICAO requirements.

COMPLEMENTARY AGENTS

Aerodrome category	Potassium bicarbonate		Halon 1211	
	kg	discharge rate kg/sec	kg	discharge rate kg/sec
1	45	2.25	45	2.25
2	90	2.25	90	2.25
3	135	2.25	135	2.25
4	135	2.25	135	2.25
5	205 (180)	2.25	205 (180)	2.25
6	225	2.25	225	2.25
7	225	2.25	225	2.25
8	450	4.5	450	4.5
9	450	4.5	450	4.5
10	450	4.5	450	4.5

Secretariat Note: The numbers in parenthesis indicate the original ICAO requirements.

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9.2.14 ***ICAO para. 9.2.14*** *states that the quantity of foam concentrate separately provided on a vehicle for foam production shall be in proportion to the quantity of water provided and the foam concentrate selected.*

9.2.15 ***ICAO para. 9.2.15*** *recommends that the amount of foam concentrate provided on a vehicle should be sufficient to supply at least two full loads of foam solution.*

9.2.16 ***ICAO para. 9.2.16*** *recommends that supplementary water supplies, for the expeditious replenishment of rescue and fire fighting vehicles at the scene of an aircraft accident, should be provided.*

IFALPA POLICY

DRAFT POLICY 1991
[Reaffirmed 2016]

IFALPA considers that sufficient foam concentrate should be provided in proportion, at the prescribed percentage of foam concentrate to water, to double the quantity of water specified in Table 9-2. Additionally, in accordance with NFPA Doc. 403 requirements, the amount of water for foam production should be increased by 1/3 for aircraft containing fuel in the tail section. Accordingly, para. 9.2.14 should be re-written as follows:

"9.2.14 The quantity of foam concentrate separately provided on vehicles for foam production shall be in proportion to the quantity of water provided and the foam concentrate selected. The amount of foam concentrate should be sufficient to supply at least two full loads of such quantity of water."

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IFALPA POLICY

PROVISION AND COMPATIBILITY OF AGENTS

IFALPA considers that a new ICAO para. 9.2.x developed as shown below regarding the chemical compatibility of foam and complementary agents. **POL-STAT 1991** [Reaffirmed 2016]

"9.2.x Compatibility of Agents - Chemical compatibility shall be assured between foam and complementary agents when used simultaneously or consecutively."

IFALPA considers that a new ICAO para. 9.2.y should be developed as shown below regarding the extinguishing agents for combustible agents for combustible metal fires and the carriage of an extinguisher. **POL-STAT 1991** [Reaffirmed 2016]

"9.2.y Combustible Metal Agents - Extinguishing agents for combustible metal fires shall be provided in portable fire extinguishers that are rated for Class D fires in accordance with Section 1-4 of NFPA 10, 'Standard for Portable Fire Extinguishers'. At least one nominal 10 kg extinguisher shall be carried on each vehicle specified in Table 9-4."

RESCUE EQUIPMENT

9.2.26 ***ICAO para. 9.2.26*** *recommends that rescue equipment commensurate with the level of aircraft operations should be provided on the rescue and fire fighting vehicle(s)* ***ICAO ANNEX 14 7TH EDITION***

A Note advises that guidance on the rescue equipment to be provided at an aerodrome is given in the Airport Services Manual Part 1.

IFALPA POLICY

IFALPA considers that ICAO para. 9.2.26 should be upgraded to the status of a Standard. **POL-STAT 1991** [Reaffirmed 2013]

RESPONSE TIME

9.2.27 ***ICAO para. 9.2.27****states that the operational objective of the rescue and fire fighting service shall be to achieve a response time not exceeding three minutes to any point of each operational runway, in optimum visibility and surface conditions.* ***ICAO ANNEX 14 7TH EDITION***

9.2.28 ***ICAO para. 9.2.28*** *recommends that the operational objective of the rescue and fire fighting service shall be to achieve a response time not exceeding two minutes to any point of each operational runway, in optimum visibility and surface conditions.*

9.2.29 ***ICAO para. 9.2.29*** *recommends that the operational objective of the rescue and fire fighting service shall be to achieve a response time not*

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exceeding three minutes to another part of the movement area in optimum visibility and surface conditions.

Note 1 to para. 9.2.29 advises that response time is considered to be the time between the initial call to the rescue and fire fighting service, and the time when the first responding vehicle(s) is (are) in position to apply foam at a rate of at least 50 per cent of the discharge rate specified in Table 9-2.

Note 2 advises that, to meet the operational objective as nearly as possible in less than optimum conditions of visibility, it may be necessary to provide guidance for rescue and fire fighting vehicles.

IFALPA POLICY

IFALPA believes that early intervention by the aerodrome fire service is one of the most important factors to successfully contain an aircraft fire and therefore ensure the best survival chances for the occupants of the aircraft in a crash situation. The present ICAO Recommendation calls for a response time not exceeding three minutes and preferably not exceeding two minutes. It is IFALPA's opinion that there are few airports today which can meet this response time, particularly under adverse operational conditions, with the equipment currently available, with the fire stations as now located and with manpower which often has to respond from other duties. Furthermore, IFALPA believes that a three minute period of exposure to the hazard is longer than can be tolerated by the occupants of the aircraft and that two minutes should be the stipulated maximum intervention time. This should be achievable under the most adverse conditions encountered whilst flying is in progress.

IFALPA considers, therefore, that ICAO para. 9.2.27 should be revised to read as follows: **POL-STAT 1985** [Reaffirmed 2016]

"9.2.27 It shall be demonstrated that the rescue and fire fighting services are capable of achieving a response time not exceeding two minutes to any part of the movement area and critical rescue and fire fighting access area in all conditions of visibility and surface conditions when flight operations are in progress."

9.2.32 ***ICAO para. 9.2.32*** *recommends that any other vehicle required to deliver the amounts of extinguishing agents specified in Table 9-2 should ensure continuous agent application and should arrive no more than three minutes from the initial call.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

IFALPA considers that the NFPA Doc. 403 guideline should be utilised which require that the other rescue and fire fighting vehicles arrive within 30 seconds of the first vehicle, the following amendment is therefore required: **POL-STAT 1991** (Reaffirmed 2011)

"9.2.32 Any vehicle required to deliver the amounts of extinguishing agents specified in Table 9-2 shall arrive no more than 30 seconds after the first responding vehicle(s) so as to provide continuous agent application."

STATUS AND DATE

9.2.x A new paragraph should be added after 9.2.29 to read: **POL-STAT 1991** (Reaffirmed 2011)

"9.2.x Before operations in less than Standard Visibility are conducted at any aerodrome it should be demonstrated that the Rescue and Fire Fighting Service has the capability to locate a distressed aircraft and operate effectively in the conditions prevailing when such operations are in progress."

Note: The IFALPA definition for Standard Visibility is ½ statute mile or 800 metres (2600 feet) RVR.

9.2.y CRASH LOCATOR DEVICE

To help achieve the IFALPA policy related to response time and the provision of RFF services at all times flight operations are in progress, an urgent need has manifested itself for the provision of a Crash Locator Device to be fitted to all commercial aircraft.

Accordingly, a further new paragraph should be added after 9.2.x, to read: **POL-STAT 1991** [Reaffirmed 2016]

"9.2.y Recommendation.- A Crash Locator Device should be constructed to the same specification as to impact, fire and corrosion resistance, as is the Voice and Flight Data Recorder.

A Crash Locator Device should have an independent, rechargeable power source.

Additional features should include:

a) The device should be activated either by the pilots, if able, or independently by an inertia type switch in the event of flight crew incapacitation. Upon immersion in water, the device should be both ejectable and floatable.

b) The transmissions used should be the same in all countries of the world, and selected so as to avoid confusion with existing locators at airports.

c) A test procedure should be available in order for the serviceability of the unit to be determined. A malfunction warning should be located in the cockpit.

d) Rescue and Fire Fighting Services should be equipped with a homing device, capable of receiving signals from the Crash Locator Device. The presentation to the personnel of the RFF service should be unambiguous and easily read."

Policy under review with AGE and ADO Committees

STATUS AND DATE

EMERGENCY ACCESS ROADS

9.2.34 ***ICAO para. 9.2.34*** *recommends that emergency access roads should be provided on an aerodrome where terrain conditions permit their construction, so as to facilitate achieving minimum response times. Particular attention should be given to the provision of ready access to approach areas up to 1000m from the threshold, or at least within the aerodrome boundary. Where a fence is provided, the need for convenient access to outside areas should be taken into account.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that ICAO para. 9.2.34 (above) should be revised to read as follows and be upgraded to the status of a Standard:

POL-STAT 1985 [Reaffirmed 2016]

"9.2.34 Emergency access roads shall be provided on an aerodrome so as to facilitate achieving minimum response times. Particular attention shall be given to the provision of ready access to the critical rescue and fire fighting access area. Where a fence is provided, most appropriate access to outside areas shall be provided."

9.2.35 ***ICAO para. 9.2.35*** *recommends that emergency access roads should be capable of supporting the heaviest vehicles, which will use them, and be usable in all weather conditions. Roads within 90m of a runway should be surfaced to prevent surface erosion and the transfer of debris to the runway. Sufficient vertical clearance should be provided from overhead obstructions for the largest vehicles.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that ICAO paras. 9.2.35 should be upgraded to the status of a Standard.

POL-STAT 1991 [Reaffirmed 2013]

9.2.36 **ICAO *para. 9.2.36*** *recommends that when the surface of the road is indistinguishable from the surrounding area, or in areas where snow may obscure the location of the roads, edge markers should be placed at intervals of about 10m.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that ICAO para. 9.2.36 should be upgraded to the status of a Standard.

POL-STAT 1991 [Reaffirmed 2013]

STATUS AND DATE

COMMUNICATION AND ALERTING SYSTEMS

9.2.39 ***ICAO para. 9.2.39*** *recommends that a discrete communication system should be provided linking a fire station with the control tower, any other fire station on the aerodrome and the rescue and fire fighting vehicles.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that this Recommendation should be expanded to take into consideration the aerodromes operational needs and upgraded to the status of a Standard.

POL-STAT 1991 [Reaffirmed 2013]

9.2.x A discrete frequency should be provided linking the incident commander with the flight crew. This frequency should be standardised globally and displayed on all relevant charts.

POL-STAT 2011

9.2.y The communications between the incident commander and the flight crew should use standard phraseology and the incident commander should have English Proficiency Level 3.

POL-STAT 2011

9.2.40 ***ICAO para. 9.2.40*** *recommends that an alerting system for rescue and fire fighting personnel, capable of being operated from that station, should be provided at a fire station, any other fire station on the aerodrome and the aerodrome control tower.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that this Recommendation should be upgraded to the status of a standard and expanded to encompass the operational requirements by the addition of the following text:

POL-STAT 1991 [Reaffirmed 2013]

'The operational communications system shall provide a primary and, where necessary, an alternate effective means for direct communication between the following, as applicable:

a) the alerting authority such as the control tower or flight service station, airport manager, fixed-base operator, or airline office and the aerodrome RFF service;

b) the air traffic control tower or flight service station and RFF vehicles en-route to an aircraft emergency or at the accident/incident site;

c) the fire department alarm room and RFF vehicles at the accident/incident site;

d) the aerodrome rescue and fire fighting services and appropriate mutual aid organisations located on or off the aerodrome, including an alert procedure for all auxiliary personnel expected to participate;

e) the rescue and fire fighting vehicles; and

f) the aircraft and fire fighting vehicles.

g) direct VHF Flight Crew Fire Fighter Communications.

STATUS AND DATE

NUMBER OF RESCUE AND FIRE FIGHTING VEHICLES

9.2.41 ***ICAO para. 9.2.41*** *recommends that the minimum number of rescue and fire fighting vehicles provided at an aerodrome should be in accordance with the following tabulation:*

ICAO ANNEX 14 7TH EDITION

Aerodrome category	*Rescue and fighting vehicles*
1	*1*
2	*1*
3	*1*
4	*1*
5	*1*
6	*2*
7	*2*
8	*3*
9	*3*
10	*3*

A Note advises that guidance on minimum characteristics of rescue and fire-fighting vehicles is given in the Airport Services Manual (Doc. 9137), Part 1.

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that the above tabulation should be amended as follows and then upgraded to the status of a Standard

POL-STAT 1993 [Reaffirmed 2013]

Aerodrome Category	**Rescue and Fighting Vehicles**
1	1
2	1
3	1
4	1
5	**2**
6	2
7	**3**
8	**4**
9	**4**
10	**4**

Secretariat Note: Number in **bold** indicate changes from ICAO recommendation.

STATUS AND DATE

PERSONNEL

9.2.44 ***ICAO para. 9.2.44*** *recommends that, during flight operations, sufficient trained personnel should be detailed and be readily available to ride the rescue and fire fighting vehicles and to operate the equipment at maximum capacity. These trained personnel should be deployed in a way that ensures that minimum response times can be achieved and that continuous agent application at the appropriate rate can be fully maintained. Consideration should also be given for personnel to use hand lines, ladders and other rescue and fire fighting equipment normally associated with aircraft rescue and fire fighting operations.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that ICAO para. 9.2.44 should be upgraded to the status of a Standard.

POL-STAT 1994 [Reaffirmed 2013]

The following new text should be added after para 9.2.40:

POL-STAT 1991 [Reaffirmed 2013]

"9.2.44.x A person shall be appointed to direct the aerodrome rescue and fire fighting services. The responsibilities of this person shall include overall administrative supervision of the organisation, effective training of personnel and operational control of emergencies involving aircraft within the aerodrome jurisdiction."

"9.2.44.y All rescue and fire fighting personnel shall meet the requirements of NFPA 1003 'Standard for Airport Fire Fighting Professional Qualifications'."

POL-STAT 1991 [Reaffirmed 2013]

RESCUE AND FIRE FIGHTING

ICAO ANNEX 14 7TH EDITION

ICAO ANNEX 14 CHAPTER 9.2 STATES:

General

Introductory Note.— The principal objective of a rescue and firefighting service is to save lives in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome. The rescue and firefighting service is provided to create and maintain survivable conditions, to provide egress routes for occupants and to initiate the rescue of those occupants unable to make their escape without direct aid. The rescue may require the use of equipment and personnel other than those assessed primarily for rescue and firefighting purposes.

Personnel

9.2.42 All rescue and firefighting personnel shall be properly trained to perform their duties in an efficient manner and shall participate in live fire drills commensurate with the types of aircraft and type of rescue and firefighting equipment in use at the aerodrome, including pressure-fed fuel fires.

STATUS AND DATE

Note 1.— Guidance to assist the appropriate authority in providing proper training is given in Attachment A, Section 18, and the Airport Services Manual *(Doc 9137), Part 1.*

Note 2.— Fires associated with fuel discharged under very high pressure from a ruptured fuel tank are known as "pressure-fed fuel fires".

IFALPA Policy **POL-STAT 2015**

ADD additional text to the ICAO Standard **(**new text in ***bold italics*****):**

9.2.42 All rescue and fire fighting personnel shall be properly trained to perform their duties in an efficient manner, ***including training to initiate the rescue of those occupants unable to self-evacuate without direct aid,*** and shall participate in live fire drills commensurate with the types of aircraft and type of rescue and firefighting equipment in use at the aerodrome, including pressure-fed fuel fires.

PERSONNEL

9.2.46 ***ICAO para. 9.2.46*** *states that, during all responding rescue and fire fighting personnel shall be provided with protective clothing and respiratory equipment to enable them to perform their duties in an effective manner.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

IFALPA considers that additional text is necessary as follows: **POL-STAT 1991** [Reaffirmed 2013]

9.2.46.x All rescue and fire fighting and other authorised personnel shall be given suitable uniforms or identifying insignia to prevent any misunderstanding as to their right to be in the fire area or the aircraft movement area of an aerodrome during an emergency."

9.2.46.y Approved protective clothing and equipment, including protective coat, protective trousers, helmet, gloves and self-contained breathing apparatus (SCBA), shall be provided, maintained, and readily available for use by all rescue and fire fighting personnel."

"9.2.46.z SCBA for rescue and fire fighting personnel shall meet the requirements of NFPA 1981 'Standard for Self Contained Breathing Apparatus for Fire Fighters.'

"9.2.46.xx Station/work uniforms worn by rescue and fire fighting personnel shall meet the requirements of NFPA 1975' Standard on Station/Work Uniforms for Fire Fighters'."

"9.2.46.yy Other than rescue and fire fighting vehicle driver/operators, all rescue and fire fighting personnel engaged in any rescue or fire fighting operation shall wear complete protective clothing, including SCBA, and shall not remove any protective clothing

STATUS AND DATE

or SCBA until they are in a safe area and so directed by the officer in charge."

9.4 WILDLIFE STRIKE HAZARD REDUCTION

IFALPA POLICY

It has been recognised by the Federation that certain National Authorities are more aware of the bird/ wildlife hazard issue than others. In this context the following policies have been developed with close reference to, amongst others, the following documents:

POL-STAT 2007 [REAFFIRMED 2011]

a) US FAA Wildlife Hazard Management at Airports, second edition 2005
b) UK CAA, CAP 772 Aerodrome Bird Control
c) IBIS Standards For Aerodrome Bird/Wildlife Control
d) ICAO Airport Service Manual. Part 3 Doc.9137
e) ACI Aerodrome Bird Hazard Prevention and Wildlife Management Handbook

9.4.4 ***ICAO para 9.4.4*** states *that the appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem. Where the elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

9.4.4 The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity (13km).

POL STAT 2011

STATUS AND DATE

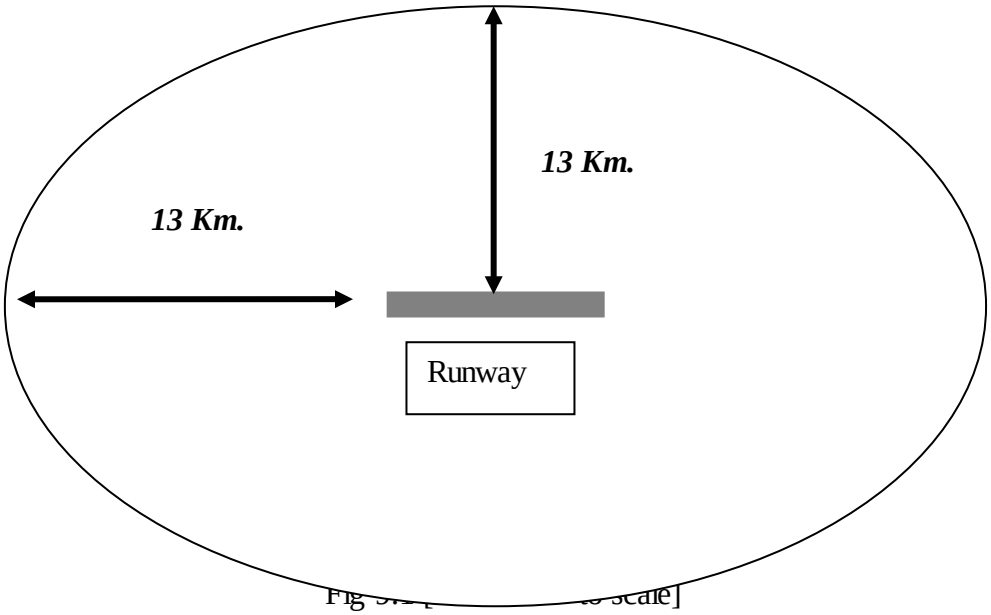


Fig 9.4-2 [Not to scale]

9.4.X BIRD DETECTION POLICY

Next generation bird strike prevention requires additional techniques such as bird/avian radars which assist in acquiring extensive bird movement knowledge.

9.4.X.1 If these systems have been put in place they shall be used to improve knowledge of local and regional bird movements in the airport vicinity. This knowledge shall be used to improve the local bird hazard prevention programme, which includes the real-time application for wildlife controller to apply countermeasures. **DRAFT POLICY 2014**

9.4.X.2 If potential high risk areas have been identified, they shall be used to improve airport design and use. These measures would include adapted Runway assignments and influence on airport design. **DRAFT POLICY 2014**

9.4.X.3 Tactical application of bird detection techniques and the resulting measures or warnings shall be advisory only, with the final authority to determine the appropriate action (e.g. conducting specific manoeuvres) resting with the pilot-in-command. **DRAFT POLICY 2014**

9.5 APRON MANAGEMENT SERVICE

9.5.1 ***ICAO paragraph 9.5.1*** *recommends that, when warranted by the volume of traffic and operating conditions, an appropriate apron management service should be provided on an apron by an aerodrome ATS unit, by another aerodrome operating authority, or by a co-operative combination of these, in order to:*

ICAO ANNEX 14 7TH EDITION

a) regulate movement with the objective of preventing collisions between aircraft, and between aircraft and obstacles;

b) regulate entry of aircraft into, and coordinate exit of aircraft from, the apron with the aerodrome control tower; and

c) ensure safe and expeditious movement of vehicles and appropriate regulation of other activities.

IFALPA POLICY

This text should be revised to read as follows and be upgraded to the status of a Standard.

POL-STAT 2002
[Reaffirmed 2013]

"9.5.1 A dedicated apron management and control system, appropriate to the volume of traffic or operating conditions, shall be provided on an apron by the aerodrome operating authority in order to regulate movement and any other activities with the objective of preventing collisions between aircraft and between aircraft and obstacles."

A new paragraph should be added after 9.5.1 to read:

POL-STAT 2002
[Reaffirmed 2013]

"**9.5.1.x APRON CONTROL SERVICE**

In low visibility conditions, or if the volume of traffic or operating conditions demand, a dedicated apron management and control system shall be provided on an apron by an aerodrome ATS unit, another aerodrome operating authority or by a co-operative combination of these in order to ensure the safe and expeditious movement of aircraft and surface vehicles including the entry of aircraft to and the exit of aircraft from the apron by co-ordination with the aerodrome control unit."

Note – In order to meet the requirement of these POL-STATs 9.5.1 and 9.5.1.x, the following are recommended:

a) a separate control frequency;

b) the use of a surface movement surveillance system in low visibility operations.

9.5.2 ***ICAO para. 9.5.2*** *recommends that, when the aerodrome control tower does not participate in the apron management service, procedures should be established to facilitate the orderly transition of aircraft between the apron management unit and the aerodrome control tower.*

ICAO ANNEX 14 7TH EDITION

STATUS AND DATE

An appended Note advises that guidance on an apron management service is given in the Airport Services Manual, Part 8 and in the manual of Surface Movement Guidance and control Systems (SMGCS (Doc. 9476)).

IFALPA POLICY

This text should be revised to read as follows and be upgraded to the status of a Standard:

DRAFT POLICY 1983 [Reaffirmed 2013]

"9.5.2 Where apron control service is provided and the aerodrome control unit does not participate in this apron control service, procedures shall be established to facilitate the orderly transition of aircraft between the apron control unit and the aerodrome control unit."

See also the IFALPA definitions of apron management and apron control services in Chapter 1 of this Annex.

9.6 GROUND SERVICING OF AIRCRAFT

9.6 ***ICAO Section 9.6*** *addresses fire extinguishing equipment requirements and the positioning of ground equipment when aircraft refuelling operations take place with passengers on board.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

There is a need to address also the question of the personnel required to conduct fuelling operations in view of the fairly widespread practice of using one man only, even on wide-body aircraft. IFALPA considers this practice to be potentially unsafe because one man is not sufficient to cope with all possible contingencies such as coupling breakdowns or damaged fuel lines. Accordingly, an additional paragraph should be added to Section 9.6, to read:

POL-STAT [Reaffirmed 2013]

"9.6.x Fuelling operations should always be conducted by at least two fully-trained and qualified personnel. One should perform the fuelling operation itself and the second should be designated to be responsible for the safety of the operation."

9.9 SITING OF EQUIPMENT AND INSTALLATIONS ON OPERATIONAL AREAS

9.9.6 ***ICAO para. 9.9.8*** *recommends that any equipment or installation required for air navigation purposes which is an obstacle of operational significance in accordance with 4.2.4, 4.2.11, 4.2.20 or 4.2.27 should be frangible and mounted as low as possible.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA considers that ICAO para. 9.9.8 should be upgraded to the status of a Standard, by deleting "RECOMMENDATION" and changing "should" to "shall" wherever it appears.

POL-STAT 1985 [Reaffirmed 2013]

9.10 FENCING

APPLICATION

9.10.1 ***ICAO para. 9.10.1*** *states that a fence or other suitable barrier shall be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.*

ICAO ANNEX 14 7H EDITION

9.10.2 ***ICAO para. 9.10.2*** *states that a fence or other suitable barrier shall be provided on an aerodrome to deter the inadvertent or premeditated access of an unauthorized person onto a non-public area of the aerodrome.*

Note 1.— This is intended to include the barring of sewers, ducts, tunnels, etc., where necessary to prevent access.

Note 2.— Special measures may be required to prevent the access of an unauthorized person to runways or taxiways

which overpass public roads.

9.10.3 ***ICAO para. 9.10.3*** *states that suitable means of protection shall be provided to deter the inadvertent or premeditated access of unauthorised persons into ground installations and facilities essential for the safety of civil aviation located off the aerodrome.*

IFALPA POLICY

Changes are required so that paragraph 9.10.1 should read:

9.10.1 A fence or other suitable barrier shall be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft. This fence should be a minimum of 2.5 metres high, topped by 3 strands of barbed wire, making the total height of the barrier 3 metres. The fence should be made of material impervious to penetration by both animals and people.

POL-STAT 2005 (REAFFIRMED 2009)

LOCATION

9.10.4 ***ICAO para 9.10.4*** *states that the fence or barrier shall be located so as to separate the movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft from areas open to public access.* — ***ICAO ANNEX 14 7TH EDITION***

9.10.5 ***ICAO para 9.10.5*** *recommends that when greater security is thought necessary, a cleared area should be provided on both sides of the fence or barrier to facilitate the work of patrols and to make trespassing more difficult. Consideration should be given to the provision of a perimeter road inside the aerodrome fencing for the use of both maintenance personnel and security patrols.* — ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

IFALPA considers that facilities or zones vital for safe operation of aircraft should be subject to a status of Standard and that when greater security is thought necessary, this text should be subject to a status of Standard. — **POL-STAT 2004 (REAFFIRMED 2009)**

IFALPA therefore considers that ICAO para 9.10.5 should be upgraded to the status of a Standard, by deleting "RECOMMENDATION" and changing "should" to "shall" wherever it appears.

In addition changes are required so that paragraph 9.10.5 now reads:

9.10.5 A cleared area shall be provided on both sides of the fence or barrier to facilitate the work of patrols, to reduce the presence of wildlife and to make trespassing more difficult. A perimeter road inside the aerodrome fencing for the use of both maintenance personnel and security patrols shall be provided. — **POL-STAT 2005 (REAFFIRMED 2009)**

9.11 SECURITY LIGHTING

9.11 ***ICAO para. 9.11*** *recommends that at an aerodrome where it is deemed desirable for security reasons, a fence or other barrier provided for the protection of international civil aviation and its facilities should be illuminated at a minimum essential level. Consideration should be given to locating lights so that the ground area on both sides of the fence or barrier, particularly at access points, is illuminated.* — ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

IFALPA believes that at aerodromes where it is deemed desirable for security reasons, for the protection of international civil aviation, these facilities should be a Standard. — **POL-STAT 2004 (REAFFIRMED 2009)**

IFALPA therefore considers that the ICAO para. 9.11 should be upgraded to the status of a Standard, by deleting "RECOMMENDATION" and changing "should" to "shall" wherever it appears.

CHAPTER 10 AERODROME MAINTENANCE

10.2 PAVEMENTS

10.2.6 ***ICAO para 10.2.6 recommends that*** *When there is reason to believe that the drainage characteristics of a runway or portions thereof are poor due to slopes or depressions then the runway friction characteristics should be assessed under natural or simulated conditions that are representative of local rain and corrective maintenance action should be taken as necessary.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

IFALPA believes that this provision should be upgraded to a standard.

POL-STAT 2007 [Reaffirmed 2017]

10.2.6 *The surface of a paved runway shall be maintained in a condition so as to provide a good friction characteristics and low rolling resistance. Snow, slush, ice, standing water, mud, dust, sand, oil, rubber deposits and other contaminants shall be removed as rapidly and completely as possible to minimise accumulation.*

Note to this paragraph advises that guidance on determining and expressing the friction characteristics when conditions of snow or ice cannot be avoided is given in Attachment A, Section 6. The Airport Services Manual, Part 2, contains further information on this subject, on improving friction characteristics and on clearing of runways.

10.3 REMOVAL OF CONTAMINANTS

10.3.1 ***ICAO para 10.3.1 states that*** *Snow, slush, ice, standing water, mud, dust, sand, oil, rubber deposits and other contaminants shall be removed from the surface of runways in use as rapidly and completely as possible to minimize accumulation.*

ICAO ANNEX 14 7TH EDITION

Note.— The above requirement does not imply that winter operations on compacted snow and ice are prohibited. Guidance on snow removal and ice control and removal of other contaminants is given in the Aerodrome Services Manual (Doc 9137), Parts 2 and 9.

IFALPA POLICY

The policy set out below arises from the frequent concerns expressed about the presence of rubber contamination on runways or runway turn pads. Heavy deposits are particularly dangerous when the runway is wet and this type of contamination is a known factor contributing to directional control problems and runway excursion accidents. The policy seeks to divide the contaminants listed in existing ICAO para 10.3.1 into two categories:

(i) those which can accumulate rapidly and which need to be removed as quickly as possible; and

(ii) those which build-up over a longer period of time and which should be dealt with through implementation of a regular maintenance programme.

STATUS AND DATE

The reference to the term "operators" in new para. 10.3.1.y is intended to imply either the airline company or the operating pilot. ICAO Annex 14, Volume I, Attachment A, para. 7.8 provides criteria to guide States concerning the minimum friction levels to be specified below which the maintenance programme should be put into effect.

IFALPA therefore considers that ICAO para. 10.3.1 above should be divided into two new sub-paragraphs reading as follows and that they be given the status of a Standard: **POL-STAT 1986** [Reaffirmed 2013]

"10.3.1.x The surface of a runway or runway turn pad shall, as far as possible, be maintained in a clean condition so as to provide a good braking friction co-efficient and low rolling resistance. Snow, slush, ice, standing water, mud, dust and sand shall be removed as rapidly and completely as possible.

10.3.1.y Oil, rubber deposits and other contaminants shall be removed by a regular maintenance schedule. The coefficient of friction shall be measured at regular intervals when the runway is reported to be slippery by the operators and the runway shall be cleaned if the friction characteristics are found to be below a level specified by the State.

Note 1.- The measurement of the coefficient of friction as required after an operator's report should be performed under similar environmental conditions."

(No change to the existing Note which should be numbered "Note 2").

A further sub-paragraph is also required as follows: **DRAFT POLICY 1987** [Reaffirmed 2013]

"10.3.1.z On runways planned for use by aircraft de-iced or anti-iced by AEA Type II fluids, rubber deposits should be removed prior to operations on runways with freezing contaminants."

IFALPA POLICY

10.5.X USE OF LED LIGHTING SYSTEMS

10.5.x.1 If LED lighting systems are installed they shall not be interspersed with other lighting systems, unless it is assured that this will not cause confusion to the intended user. **DRAFT POLICY 2012**

10.5.x.2 Maintenance Programs shall be established to ensure the lighting systems are periodically checked and replaced if there are sign of deterioration (e.g. chance in brightness, colour spectrum, failure of single segments of flickering) **DRAFT POLICY 2012**

10.5.x.3 Since LED lighting systems do not produce significant heat, procedures or systems shall be put in place to assure visibility during winter operation. **DRAFT POLICY 2012**

10.5.x.4 LED lighting systems not fulfilling the optical impression of continuous radiation shall not be used **DRAFT POLICY 2012**

STATUS AND DATE

DRAFT POLICY 2012

10.5.x.5 Where LED lighting systems are installed, Operators of Enhanced Flight Vision Systems (EFVS), Enhanced Vision Systems (EVS), and Night Vision Goggles (NVG) are to be made aware of the possible dysfunctions.

The graph shows the location where the aircraft came to rest and is based on 233 landing and tale-off accidents reported to the ICAO ADREP system for the years 1970 to 1989. Undershoot and along-the-runway accidents are plotted with respect to the threshold while overrun accidents are plotted with respect to the runway end. All distances are in metres.

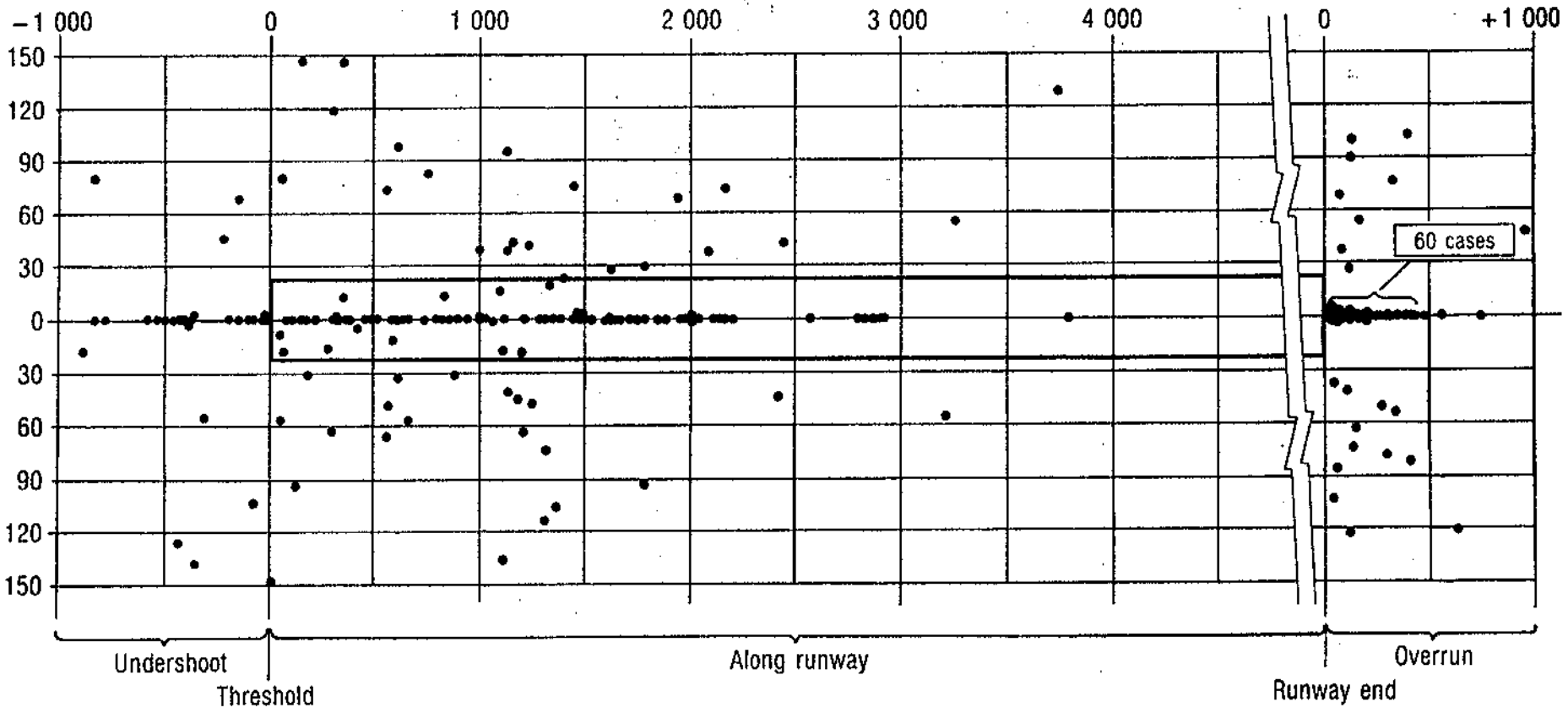


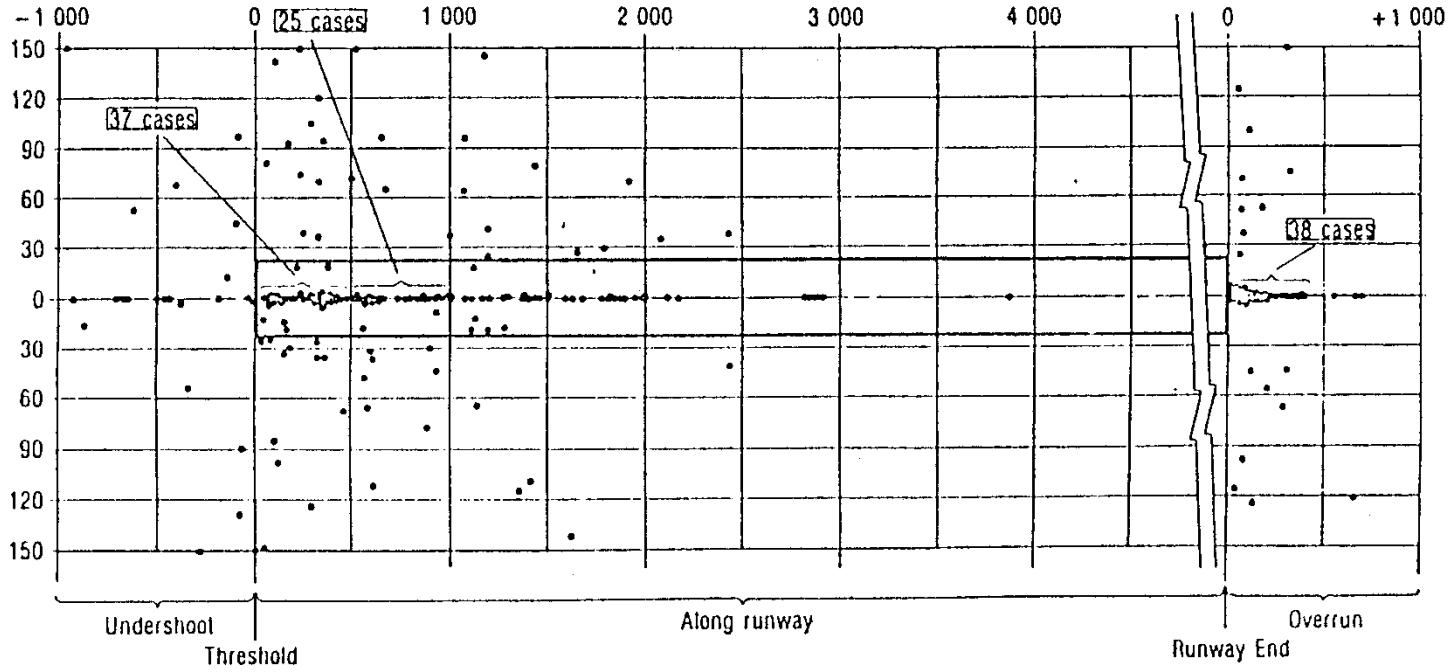
Figure 9-2 Location of landing and take-off accidents for aircraft with a maximum certificated take-off mass of over 5 700 kg

CRITICAL RESCUE AND FIRE FIGHTING ACCESS AREA

ACCIDENT LOCATION CHART
AIR CARRIER ACCIDENTS (1970 - 83)

Definition: The Critical Rescue and Fire Fighting Access Area is a rectangular area symmetrical about the runway with a width of 300 metres (1000 ft.) and a length exceeding that of the runway by 2000 metres (6600 ft.)

LOCATION OF LANDING AND TAKE OFF ACCIDENTS



The diagram shows the location where aircraft came to rest
The diagram is based on 244 landing and take-off accidents reported to the ICAO ADREP system for the years 1970 to 1983
Undershoot and along runway accidents are plotted with respect to the threshold
Overrun accidents are plotted with respect to the runway end
All distances are in metres.

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ATTACHMENT A

GUIDANCE MATERIAL SUPPLEMENTARY TO ANNEX 14

1. NUMBER, SITING AND ORIENTATION OF RUNWAYS

1.3 A new paragraph should be added to Section 1 reading as follows:

'**Determination of the runway usability factor**

1.3 In addition to the wind distribution and cross-wind components, the determination of the runway usability factor should include consideration of the following:

a) low visibility conditions;

b) coefficient of runway surface friction;

c) possibility of the failure of radio navigational aids and/or approach light systems;

d) capability of clearing disabled aircraft from the runway;

e) turbulence and/or wind shear."

6. MEASURING AND EXPRESSING BRAKING ACTION ON SNOW AND ICE-COVERED PAVED SURFACES

IFALPA POLICY

For IFALPA policy related to the provisions of this section, see IFALPA Annex 14, para.2.9.9 and IFALPA Airworthiness Technical Manual, III, 1, para. 11 and III, 9, Chapter 1.

Add new IFALPA policy to ICAO Annex 14 Attachment A Guidance Material Supplementary to Annex 14, Volume 1, paragraph 6.6 as follows:

The table with associated descriptive terms was according to ICAO Annex 14 Attachment A developed from friction data collected only in compacted snow and ice and should not therefore be taken to be absolute values applicable in all conditions. **POL-STAT 2007 [REAFFIRMED 2017]**

The reading of an approved friction measuring device shall be capable of being correlated with an agreed international standard. This standard shall also be capable of being correlated with descriptive braking action.

Add new IFALPA policy to ICAO Annex 14 Attachment A Guidance Material Supplementary to Annex 14, Volume 1, Table A-1 as follows:

IFALPA believes that the requirements for the Minimum Friction Level should adequately correlate to current dispatch requirements for wet runways. **POL-STAT 2007 [REAFFIRMED 2017]**

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IFALPA POLICY **POL STAT 2015**

UPGRADE ICAO Para. 10.6 s to a Standard. (deleted text ~~struck-through~~, new text in ***bold italics***)

10.6 The information relating to the provision of a runway end safety area and the presence of an arresting system ~~should~~ ***shall*** be published in the AIP.

ADD a new paragraph***:***

10.6.x Installed arresting systems shall be clearly defined by symbols and text on the Aerodrome, Approach and all other charts describing the runway area. **POL STAT 2015**

17. RESCUE AND FIRE FIGHTING SERVICES

17.1 ADMINISTRATION

17.1.3 ***ICAO para. 16.1.3*** *advises that co-ordination between the rescue and fire fighting services at an aerodrome and public protective agencies, such as local fire brigade, police force, coast guard and hospitals, should be achieved by prior agreement for assistance in dealing with an aircraft accident.* ***ICAO ANNEX 14 7TH EDITION***

IFALPA POLICY

Co-ordination with the air traffic services should be referred to in this paragraph by inserting after the words "Co-ordination between the rescue and fire fighting services ...." the words "...and the air traffic services ..." **POL-STAT 1985** [Reaffirmed 2013]

18.3 LEVEL OF PROTECTION TO BE PROVIDED

18.3.1 ***ICAO para 18.3.1*** *states that aerodromes should be categorised for rescue and fire fighting purposes and the level of protection provided should be appropriate to the aerodrome category.* ***ICAO ANNEX 14 7TH EDITION***

18.3.2 ***ICAO para 18.3.2*** *states that Chapter 9, 9.2.3 permits a lower level of protection for a limited period where the number of movements of the aeroplanes in the highest category normally using the aerodrome is less than 700 in the busiest consecutive three months. It is important to note that the concession included in 9.2.3 is applicable only where there is a wide range of difference between the dimensions of the aeroplanes included in reaching 700 movements.*

IFALPA POLICY

Either a take-off or a landing constitutes a movement. Scheduled, non-scheduled and general aviation movement should be counted.

IFALPA's objections to the inclusion of the number of aeroplane movements as a criterion for categorising aerodromes are stated in Chapter 9, para. 9.2.2. **POL-STAT 1985** [Reaffirmed 2013]

Accordingly, para. 18.3.1 should be completely revised to read:

"18.3.1 Aerodromes should be categorised for rescue and fire fighting

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purposes in accordance with the dimensions of the aeroplanes using the aerodrome, as detailed in Table 9-1."

18.5 FACILITIES

18.5.2 ***ICAO para. 17.5.2*** *advises that the availability of ambulance and medical facilities for the removal and after-care of casualties arising from an aircraft accident should receive the careful consideration of the Appropriate Authority and should form part of the overall emergency plan established to deal with such emergencies.*

ICAO ANNEX 14 7TH EDITION

IFALPA POLICY

Member Associations should undertake a survey of the aerodromes into which they operate, to determine if deficiencies exist in respect of medical and ambulance facilities and to take appropriate measures to rectify them.

DRAFT POLICY 1985 [Reaffirmed 2013]

A further new paragraph should be added to Section 17 of Attachment A reading as follows:

"17.x.1 The aerodrome controller should act as the focal point for all reports of fires or crashes on or near the airport. All airport personnel should be briefed on the methods of reporting to him."

DRAFT POLICY 1985 [Reaffirmed 2013]

19. OPERATORS OF GROUND VEHICLES

19.4 ***ICAO para. 18.4*** *advises that, if special procedures apply for operations in low visibility conditions, it is desirable to verify an operator's knowledge of the procedure through periodic checks.*

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IFALPA POLICY

LOW VISIBILITY OPERATION

DRAFT POLICY 1985 [Reaffirmed 2013]

The expression "... very low visibility conditions.." should be changed to read "... low visibility (taxiway) conditions ..."

See IFALPA Annex 6, Chapter 1 for the IFALPA definition of low visibility (taxiway) condition.

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ICAO MANUALS RELATED TO THE SPECIFICATIONS IN ANNEX 14

Title	Date of Publication
Airport Services Manual - (Doc. 9137 - AN/898)	
Part 1 Rescue and Fire Fighting	3rd Edition 1990
Part 2 Pavement Surface Condition	4th Edition 2002
Part 3 Wildlife Control and Reduction	4th Edition 2012
Part 5 Removal of Disabled Aircraft	4th Edition 2009
Part 6 Control of Obstacles	2nd Edition 1983
Part 7 Airport Emergency Planning	2nd Edition 1991
Part 8 Airport Operational Services	1st Edition 1983
Part 9 Airport Maintenance Practices	1st Edition 1984
Aerodrome Design Manual - (Doc. 9157 - AN/901)	
Part 1 Runways	3rd Edition 2006
Part 2 Taxiways, Aprons and Holding Bays	4th Edition 2005
Part 3 Pavements	2nd Edition 1983
Part 4 Visual Aids	4th Edition 2004
Part 5 Electrical Systems	1st Edition 1983
Part 6 Frangibility	1st Edition 2006
Airport Planning Manual - (Doc. 9184 - AN/902)	
Part 1 Master Planning	2nd Edition 1987
Part 2 Land Use and Environmental Control	3rd Edition 2002
Part 3 Guidelines for Consultant/ Construction Services	1st Edition 1983
Heliport Manual (Doc. 9261)	3rd Edition 1995
Bird Strike Information System – (Doc. 9332)	3rd Edition 1989
SMGCS – (Doc. 9476)	1st Edition 1986