

PROPOSAL FOR THE AMENDMENT OF PART 139 OF THE CIVIL AVIATION TECHNICAL STANDARDS, 2011

PROPOSER

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PROPOSER'S INTEREST

This proposer has been established in terms of the Civil Aviation Act, 2009 (Act No. 13 of 2009), to control and regulate civil aviation in South Africa and to oversee the functioning and development of the civil aviation industry, and, in particular, to control, regulate and promote civil aviation safety and security.

GENERAL EXPLANATORY NOTE

Words in **[bold and square brackets]** indicate deletions from the existing regulations
Words underlined with a solid line indicate insertions in the existing regulations

MOTIVATION

ICAO Annex 14 sets out the fundamental Standards and Recommended Practices (SARPs) for airport design and operations, which States undertake to apply through national legislation.

The objective of this amendment is to introduce new standards to improve safety performance standards in way that embed an effective safety culture in aviation organisations; and to ensure that South Africa meets its international obligations as a signatory to the Convention on International Civil Aviation. In addition, the numbering of existing regulations has been streamlined.

1. PROPOSAL FOR THE AMENDMENT OF SUBPART 5 OF PART 139

1.1 It is hereby proposed to insert Subpart 5 of Part 139 as follows:

SUBPART 5: LICENSING AND OPERATION OF AERODROMES

139.05.1 REQUIREMENTS FOR AERODROME LICENCE

1. Aerodrome licensing process

The aerodrome licensing process comprises of the following phases:

1.1 Phase 1 - Dealing with expressions of interest

- (1) This phase shall include a flight operations assessment by the Director or the relevant authorities as well as National Airspace Committee referred to in regulation 11.05.1 to ensure that the operation of an aerodrome at the location specified in the application shall not endanger the safety of aircraft operations. If the result of this assessment is negative, then there is no need to proceed any further, and the applicant shall be advised accordingly.
- (2) Part 139 of regulations require that an application for an aerodrome certificate be accompanied by an environmental impact assessment report. The processing of the expression of interest shall therefore include referrals from the Local Authorities for necessary clearance.

1.2 Phase 2 - Assessing the formal application and aerodrome manual

- (1) Submit application forms
- (2) Submit Aerodrome manuals
- (3) The applicant shall satisfy the Director that the aerodrome operator has the necessary competence and experience to comply with the relevant regulatory provisions, orders and directives.

1.3 Phase 3 - Assessing the aerodrome facilities and equipment

- (1) An on-site inspection shall be undertaken by an authorised person or inspector for the purpose of assessing the aerodrome facilities, services and equipment to verify and ensure that they comply with the specified standards and requirements.

1.4 Phase 4 - Issuing or refusing an aerodrome licence

- (1) The Director shall notify the applicant of the decision to issue or refuse the application.
 - (a) The Director may impose operational restrictions, in the interest of safety, on an aerodrome licence being issued –
 - (i) the refusal may be based on one or more of the following determinations, the inspection of aerodrome facilities and equipment revealed that they do not make satisfactory provision for the safety of aircraft operations;
 - (ii) the assessment of the aerodrome operating procedures reveals that they do not make satisfactory provision for the safety of aircraft operations;
 - (iii) the assessment of the aerodrome manual reveals that it does not contain the particulars as set out in Subpart 5 of Part 139 of the regulations; and
 - (iv) the assessment of the above facts and other factors reveals that the applicant shall not be able to adequately operate and maintain the aerodrome as required by the regulations.

1.5 Phase 5 – Promulgating the status of the licensed aerodrome and the required details in the AIP

- (1) Upon issuing of an aerodrome licence, an aerodrome operator shall provide particulars of the aerodrome as stated in the aerodrome manual to the aeronautical information service for publication in the AIP

139.05.9 Aerodromes Design Requirements

a) Physical characteristics

(1) Pavement Surfaces

- i. Runways, taxiways and parking stands/ aprons surfaces shall be prepared to a bearing strength adequate to carry the most critical operating aircraft that the aerodrome intends to serve
- ii. Surfaces shall be clear of loose aggregate
- iii. The surface of a new runway shall be cambered.
- iv. For runways with a single cross-fall, the fall from high to low shall be in the direction of the wind flow most frequently associated with rain to ensure rapid drainage of water.

(2) Unpaved surfaces

- (i) The surfaces of unpaved runways and taxiways shall be:
 - a) compacted and free of excessive loose aggregate
 - b) of strength adequate to carry aircraft.
 - c) even and provide a smooth ride

(3) Runway turn pads:

The surface of a runway turn pad shall not have surface irregularities that may cause damage to an aircraft using the turn pad

(4) Strip areas.

- I. Strip areas shall be graded to the appropriate prescribed widths and lengths
- II. The surface of the strip area shall be compacted to a strength adequate to carry aircraft that may veer off the runway and taxiway.
- III. No fixed objects other than visual aids required for air navigation purposes and satisfying the relevant frangibility requirements shall be permitted on a runway strip
- IV. Length of runway strip area shall not be less than 30 m from the edge of the runway
- V. The width of the runway strip shall not be less than 15 m from the edge of the runway
- VI. The width of the taxiway strip shall not be less than 5m from the edge of the taxiway

(5) Runway holding positions and road holding positions

(a) A runway-holding position shall be established –

- (i) on the taxiway, at the intersection of a taxiway and a runway; and
- (ii) at an intersection of a runway with another runway when the former runway is part of a standard taxi-route.

(b) A road-holding position shall be established on the road, at an intersection of a road and a runway.

(6) Aprons and Parking stands

- (a) An apron shall be provided to permit the on- and off-loading of passengers, cargo or mail as well as the servicing of aircraft without interfering with the aerodrome traffic;
- (b) Each part of an apron shall be capable of withstanding the traffic of an aircraft it is intended to serve, due consideration being provided to the fact that some portions of the apron shall be subjected to a higher density of traffic and, as a result of slow moving or stationary aircraft;
- (c) Slopes on an apron shall be sufficient to prevent accumulation of water on the surface of the apron but shall be kept as level as drainage requirements permit. The maximum slope allowable is 1%; and
- (d) An aircraft stand shall provide the following minimum clearances between an aircraft entering or exiting the stand and any adjacent building, aircraft on another stand and other objects as specified in Table 1.

Table 1: aircraft stand minimum clearance distances

Code letter	Clearance
A	3m
B	3m

C	4.5m
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b) Obstacle limitation surfaces

- (1) The following obstacle limitation surfaces shall be established for a runway –
 - (i) approach surface;
 - (ii) transitional surfaces
- (2) For a non-instrument runway, new objects or extensions of existing objects shall not be permitted above an approach or transitional surface except when the new object or extension shall be shielded by an existing immovable object, or an aeronautical study determines that the object shall not adversely affect the safety or significantly affect the regularity of operations of aircraft;
- (3) For a non-precision approach runway, new objects or extensions of existing objects shall not be permitted above an approach surface within 3000m of the inner edge or above a transitional surface except when the new object or extension shall be shielded by an existing immovable object, or an aeronautical study determines that the object shall not adversely affect the safety or significantly affect the regularity of operations of aircraft;
- (4) A take-off climb surface shall be established for a runway meant for take-off; and
- (5) New objects or extensions of existing objects shall not be permitted above a take-off climb surface except when the new object or extension shall be shielded by an existing immovable object, or an aeronautical study determines that the object shall not adversely affect the safety or significantly affect the regularity of operations of aircraft.

c) Visual aids for navigation

1) Wind direction indicator –

- (a) An aerodrome shall be equipped with at least one wind direction indicator;
- (b) 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;
- (c) The wind direction indicator shall –
 - (i) be in the form of a truncated cone made of fabric and shall have a length of not less than 3.6m and a diameter, at the larger end, of not less than 0.9m; and
 - (ii) be constructed so that it gives a clear indication of the direction of the surface wind and a general indication of the wind speed.
- (d) The colour or colours shall be selected to make the wind direction indicator clearly visible and understandable from a height of at least 300m, having regard to background;
- (e) The location of at least one wind direction indicator shall be marked by a circular band 15 m in diameter and 1.2m wide and the band shall be centred about the wind direction indicator support and shall be in a colour chosen to give adequate conspicuity, preferably white; and
- (f) Provision shall be made for illuminating at least one wind indicator at an aerodrome intended for use at night.

2) Runway markings:

- i. Runway markings shall be white.
- ii. A runway designation marking, centre line marking and threshold marking shall be provided on all paved runways;
- iii. The Designation Marking shall be the whole number nearest to one-tenth of the magnetic North when viewed from the direction of approach and shall be two digits
- iv. The runway designation markings shall be visible from aircraft in flight
- v. Where parallel runways are provided, L and R shall be used to distinguish the two runways
- vi. The dimensions of a runway centre line markings shall be a minimum of 0.3m wide and 30m long with the spacing of not less than 20m

vii. Threshold markings shall be in accordance with the Table 2 below:

Table 2: Characteristics for Runway Threshold Markings

Runway width	Number of stripes	Stripe width	Stripe length
16 m	4	1600 mm	30 m
14 m	4	1400 mm	30 m
12 m	4	1200 mm	30 m
10 m	4	1000 mm	30 m

Markings shall be measured outwards from the center line.
 Spacing between stripes shall be equal to the stripe width
 A double spacing shall be used to separate the two stripes nearest the center line of the runway.

(3) Taxiway markings

- (i) Taxiway markings, runway turn pad markings and aircraft stand markings shall be yellow; and
- (ii) Taxiway centre line marking shall be provided on a paved taxiway and aprons to provide continuous guidance between the runway centre line and aircraft stands;
- (iii) Where a paved runway turn pad is provided, a runway turn pad marking shall be provided for continuous guidance to enable the aircraft to complete a 180 degree turn and align with the runway centre line; and
- (iv) On a paved runway or taxiway, a runway-holding position marking shall be displayed along a runway-holding position.

(4) Unpaved runway markers

- (i) Unpaved runways shall be provided with white runway markers
- (ii) Runway markers shall be flush with the area adjacent to them
- (iii) A runway designation markers, threshold markers and edge markers shall be provided on all unpaved runways;
- (iv) Characteristics of designator markers, threshold markers, edge markers shall be configured as follows:
 - a) Designation markers on the outside of the thresholds
 - b) Threshold shall be (L-Shaped)
 - c) Edge markers (1m by 3m)

(5) Lights

- (i) Elevated runway and taxiway lights shall be frangible, and their height shall be sufficiently low to preserve clearance for propellers and for the engine pods of jet aircrafts
- (ii) Light fixtures inserted in the surface of runways, taxiways, and aprons shall be so designed and fitted as to withstand being run over by the wheels of an aircraft without damage either to the aircraft or to the lights themselves.
- (iii) Runway edge lights, threshold or wing bar lights and runway end lights shall be provided for a runway intended for use at night
- (iv) Characteristics for runway and taxiway lighting shall conform to the following:
 - a. Runway edge lights shall be white
 - b. Runway threshold and wing bar lights shall be green
 - c. Runway end lights shall be red
 - d. Taxiway lights shall be blue

AERODROME RESCUE AND FIREFIGHTING

139.05.10 (1) The level of protection to be provided for rescue and firefighting service
Classification matrix

Column i	Column ii	Column iii	Column iv	Column v
Aerodrome category	Aircraft overall length	Aircraft maximum fuselage width	Number of fire fighting Vehicle	Number of personnel
1	Exempted	Exempted	Exempted	Exempted
2	Exempted	Exempted	Exempted	Exempted
3	12m up to but not including 18m	3	1	3

- (a) The fire fighting vehicle shall have 4X4 capability and capacity to carry the equipment and personnel specified.
 (b) A 4X4 vehicle with a trailer or a bowser with the capacity to carry the equipment shall be used when necessary.

(2) Minimum usable amounts of extinguishing agents

Category	Foam Meeting Level A		Foam Meeting Level B		Foam Meeting Level C		Complementary agent	
	Water L	Discharge rate for foam solutions L	Water L	Discharge rate for foam solutions L	Water L	Discharge rate for foam solutions L	Dry chemical Powder kg	Discharge rate Kg/sec
1	Exempted	Exempted	Exempted	Exempted	Exempted	Exempted	Exempted	Exempted
2	Exempted	Exempted	Exempted	Exempted	Exempted	Exempted	Exempted	Exempted
3	1800	1300	1200	900	820	630	135	2.25

(3) Rescue equipment list:

Categories of Aerodromes	3
Equipment for rescue operations	
Forcible Entry Tools	
Prying Tool(Hooligan Tool)	1
Crowbar, 95 cm	1
Axe, rescue, large non wedge type	1
Axe, rescue, large non wedge type or aircraft type	1
Cutter bolt 61 cm	1
Hammer 1.8 kg	1
Chisel, cold 2.5 cm	1
A suitable range of rescue/cut-in equipment including powered rescue tools	
Hydraulic/ electrical (combination) portable rescue equipment	1
Powered rescue saw complete with minimum 406 diameter spare blades	1
Reciprocating/Oscillating saw	1
A range of equipment for the delivery of fire fighting agent	

Delivery hoses 30m lengths X 50 and 64mm diameters	6
Foam branches (nozzles)	1
Coupling adapters	1
Portable fire extinguishers	
CO2	1
DCP	1
SCBA-sufficient to maintain the prolonged internal operations(note: one BA per crew member)	
BA set complete with face mask and air cylinder	
BA spare air cylinder	
BA spare facemask	
A range of ladders	
Extension ladder, rescue and suitable for critical aircraft rescue	-
Protective clothing	
Fire fighting helmet, coat, over trousers(complete with braces) boots and gloves(Note; one set per operational fire fighter)	
Additional items for personal protection	
Protective goggles	1
Flash Hood(One per fire-fighter)	
1 Box of surgical gloves	
Blanket fire resisting	1
Rope lines	
Rope line general use 30m	1
Communication equipment	
Portable transceivers(hand held and intrinsically safe)	1
A range of hand-held/portable lighting equipment	
Hand-held flashlight (intrinsically safe)	1
Portable lighting-spot or flood intrinsically safe	1
First aid equipment	
Medical first aid kit	1
Miscellaneous equipment(Chocks and wedges-various sizes)	
Tarpaulin- lightweight	1
Rescue tool box and content	
Hammer, claw 0.6kg	1

Cutters, cable 1.6cm	1
Hacksaw, heavy duty complete with spare blades	1
Screwdriver set-slotted	1
Pliers, insulated	1
Side cutting 20cm	1
Slip joint-multi-grip 25cm	1
Seatbelt/harness cutting tool	1
Wrench, adjustable 30cm	1

139.05.11 Aerodrome rescue and firefighting personnel training standards

(1) All firefighting personnel shall be in possession of:

- (a) Airside induction
- (b) Radio telephony
- (c) Vehicle driver and operator training
- (d) Basic firefighting training based on aerodrome specific equipment, infrastructure including the type of aircraft normally operating to and from that aerodrome and the potential problems such aircraft may pose to the aerodrome rescue and firefighting services.
- (e) Aircraft construction
- (f) First Aid up to a level 2 is required.
 - i. **AEMS Manual: Shall be according to the size scope and complexity of the aerodrome, it must meet all the requirements as set out (Part 1-5). Frequency of the exercise will be every 3 years**
 - ii.

139.05.12 Perimeter barrier

A fence or other suitable barrier or procedure shall be provided on an aerodrome to:

- a. prevent the entrance to the movement area of animals large enough to be a hazard to aircraft; and
- b. deter the inadvertent or premeditated access of an unauthorised person onto a non-public area of the aerodrome