



## ACCEPTABLE INFLIGHT CREW SLEEPING QUARTERS & REST FACILITIES

### SECTION 1 GENERAL

#### 1.1 PURPOSE

This advisory circular (AC) provides guidance for methods which will be acceptable to the Ghana Civil Aviation Authority (GCAA). An operator should use this circular to obtain a satisfactory GCAA finding regarding the adequacy of on board sleeping quarters for compliance with GCADs Ghana Civil Aviation Directives (GCADs) Part 09.

#### 1.2 STATUS OF THIS ADVISORY CIRCULAR

This AC is an original issuance.

#### 1.3 BACKGROUND

A. The operator is required to provide adequate sleeping quarters and rest facilities that are acceptable to GCAA when assigning crew members to

Sleep of adequate quality and duration is needed during long-range flights to reduce sleepiness and improve flight crewmember performance during critical phases of flight.

B. These sleeping quarters and rest facilities would be used by flight crew members to obtain sleep of adequate quality during duty aloft for flights scheduled for more than 12 hours during any 24-consecutive hours.

C. This AC also references acceptable criteria which may be used for the design and installation of flight crew sleeping quarters and rest facilities on commercial transport aircraft capable of long-range operations with augmented or enlarged flight crew complements.

If, in addition to providing sleeping quarters, an operator voluntarily provides an area for storing personal articles and for changing clothing, then this AC also provides useful information and advice for their design and installation.

#### 1.4 APPLICABILITY

This advisory circular is applicable to all turbine aircraft and aircraft with a gross take-off weight of more than 5700kg when operated in flight that require augmented or enlarged flight crew complements in order to comply with the flight duty and rest period requirements.

- Advisory Circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.
- Where a regulation contains the words "prescribed by the Authority," the AC may consider to "prescribe" a viable method of compliance, but status of that "prescription" is always "guidance" (never a regulation).

## 1.5 RELATED REGULATIONS

The following regulations are directly applicable to the guidance contained in this advisory circular—

- GCADs Part 09, Flight, Duty and Rest Period Requirements
- GCADs Part 09, AOC Certification and Administration

## 1.6 RELATED READING MATERIAL

### A. Ghana Civil Aviation Authority

- AC 09-001 Flight Duty Time Limitations

This advisory circular and copies of these regulations may be obtained from the GCAA Safety Regulations Department.

### B. Society of Automotive Engineers (SAE)

- Aerospace Recommended Practice (ARP) 4101/3, Crew Rest Facilities
- ARP4101, Flight Deck Layout and Facilities, for the design and installation of flight crew sleeping quarters and rest facilities.
- SAE ARP1323, Type Measurements of Aircraft Interior Sound Pressure Levels During Cruise.
- SAE ARP4245, Quantities for Description of the Acoustical Environment in the Interior of the Aircraft.

The SAE documents may be obtained for a fee from—

- The Engineering Society for Advancing Mobility Land, Sea, Air, and Space International
- 400 Commonwealth Drive
- Warrendale, PA 15096-0001, United States

## SECTION 2 DEFINITIONS

### A. For purposes of this advisory circular, these terms are defined as follows—

- 1) **Flight Crew Rest Facilities.** An area designed for the purpose of obtaining sleep, stowing personal articles, and changing clothes in privacy for off-duty flight crew. the flight crew sleeping quarters may be an integral part of a flight crew rest facility.
- 2) **Flight Crew Sleeping Quarters.** Any area designated for the purpose of obtaining sleep in an isolated space with a horizontal sleeping surface for off-duty flight crew.
- 3) **Sleeping Surface.** Any horizontal surface such as a bed or bunk the meets the guidelines referenced in this AC.
- 4) **Free Space.** An area designated for the use of the crew to change and stow clothing.

### B. The following acronyms and abbreviations are used in this advisory circular—

- 1) **AC** – Advisory Circular
- 2) **ARP** – Aerospace Recommended Practise
- 3) **GCAA** – Ghana Civil Aviation Authority
- 4) **GCADs** – Ghana Civil Aviation Directives
- 5) **SAE** – Society for Automotive Engineers

## SECTION 3 OPERATIONAL CONSIDERATIONS

### 3.1 FLIGHT CREW SLEEPING QUARTERS & REST FACILITIES

#### 3.1.1 GENERAL POLICY

- A. The location of flight crew sleeping quarters or rest facilities in an aircraft is an important decision that should be based on an analysis of the following factors to ensure that adequate environment is provided to enable flight crewmembers to obtain sleep of adequate quality.
- B. There should be a sufficient number of sleeping surfaces provided to accommodate the maximum number of flight crewmembers that would be expected to use these surfaces during the same period of time.

#### 3.1.2 ADEQUATE VOLUME

- A. For flight crew sleeping quarters, adequate volume should be provided for sleeping. The recommended sleeping space volume per individual is 1.0 m<sup>3</sup> (35 feet<sup>3</sup>).
- B. For flight crew rest facilities, adequate volume should be provided for sleeping, personal articles storage, and changing of clothes. The following volumes are recommended—
  - 1) Individual sleeping space volume: 1.0 m<sup>3</sup> (35 feet<sup>3</sup>).
  - 2) Free space adjacent to the sleeping surfaces for ingress and egress and changing of clothes: 1.85 m<sup>3</sup> (65 feet<sup>3</sup>).

### 3.2 SLEEPING SURFACES

The following are acceptable criteria for sleeping surfaces—

- 1) Dimensions for each sleeping surface of 1.98 x 0.76m (78 x 30 inches).
- 2) The sleeping surfaces should be designed so that they are as level as practicable during cruise flight.
- 3) Suitable means should be provided to ensure occupant privacy for each sleeping surface area Curtains in an over-and -under arrangement or a divider curtain in a side-by-side arrangement would be an acceptable means.

### 3.3 ISOLATION

- A. The flight crew rest facility or flight crew sleeping quarters should be in a location where intrusive noise, odours, and vibration have minimum effect on sleep.
- B. The spectrum of the sound within these areas should be limited to broadband without annoying tones. Special attention should be given to the existence of doors, passenger convenience systems, public address systems, etc., in the immediate area to minimize intrusive noise.
- C. A noise level during cruise flight in the range of 70 to 75 dB(A) is considered a reasonable design objective.

### 3.4 ENVIRONMENTAL

- A. Airflow and temperature control should provide a uniformly well-ventilated atmosphere free from drafts, cold spots, and temperature gradient.
- B. The sleeping surface area shall be a non-smoking area.

### 3.5 PUBLIC ADDRESS SYSTEM

The public address system or an alternative means should include provisions to provide only relevant information to flight crewmembers in the flight crew rest facility

Relevant information would include—

- Fire in flight
- Aircraft depressurization
- preparation of compartment occupants for landing

### 3.6 EMERGENCY LIGHTING

Emergency lighting should be provided in flight crew rest facilities.

### 3.7 STOWAGE & RESTRAINTS

Suitable personal articles stowage and occupant restraint systems must be provided to each occupant of sleeping surfaces as well as each occupant of any seats located in flight crew rest facilities.

### 3.8 EMERGENCY & OTHER EQUIPMENT

- A. Approved oxygen equipment must be provided for each crewmember who uses a sleeping surface and flight crew rest facility seat.
- B. One or more lighted "FASTEN SEAT BELTS" signs within the view of the occupants of each sleeping surface and seat located within a flight crew rest facility.

#### 3.8.1 SMOKING FACILITIES?

- A. If the operating rules and the operator permit smoking in a flight crew rest facility, the following apply—
  - 1) One or more lighted "NO SMOKING" signs within the view of the occupants of each sleeping surface and seat located in the facility should be provided; and
  - 2) An adequate number of self-contained, removable ashtrays for each seat in the facility must be provided.
- B. If the operating rules and the operator do not permit smoking in a flight crew rest facility, then one or more "NO SMOKING" placards legible to the occupants of each sleeping surface and seat located in the facility should be provided.

## SECTION 4 REQUEST FOR ADEQUACY DETERMINATION FINDING

- A. If the operator wants a formal GCAA determination on the adequacy of flight crew sleeping quarters and flight crew rest facility installations, such requests should be forwarded to the GCAA Safety Regulations Department.
- B. The GCAA will conduct an evaluation and decision regarding whether or not to issue a finding that proposed installations are adequate for their intended function under the regulations and this advisory circular.
- C. Operators can have their crewmembers use sleeping quarters without a formal GCAA adequacy determination.



Without this determination, enforcement action may be taken if the GCAA later determines that such sleeping quarters were inadequate.

*End of Advisory Circular 15-002*