

part of the type design and for seat and berth installations may be shown by—

(1) Structural analysis, if the structure conforms to conventional airplane types for which existing methods of analysis are known to be reliable;

(2) A combination of structural analysis and static load tests to limit load; or

(3) Static load tests to ultimate loads.

[Amdt. 23-36, 53 FR 30813, Aug. 15, 1988; Amdt. 23-36, 54 FR 50737, Dec. 11, 1989; Amdt. 23-49, 61 FR 5167, Feb. 9, 1996]

§ 23.787 Baggage and cargo compartments.

(a) Each baggage and cargo compartment must:

(1) Be designed for its placarded maximum weight of contents and for the critical load distributions at the appropriate maximum load factors corresponding to the flight and ground load conditions of this part.

(2) Have means to prevent the contents of any compartment from becoming a hazard by shifting, and to protect any controls, wiring, lines, equipment or accessories whose damage or failure would affect safe operations.

(3) Have a means to protect occupants from injury by the contents of any compartment, located aft of the occupants and separated by structure, when the ultimate forward inertial load factor is 9g and assuming the maximum allowed baggage or cargo weight for the compartment.

(b) Designs that provide for baggage or cargo to be carried in the same compartment as passengers must have a means to protect the occupants from injury when the baggage or cargo is subjected to the inertial loads resulting from the ultimate static load factors of § 23.561(b)(3), assuming the maximum allowed baggage or cargo weight for the compartment.

(c) For airplanes that are used only for the carriage of cargo, the flightcrew emergency exits must meet the requirements of § 23.807 under any cargo loading conditions.

[Doc. No. 27806, 61 FR 5167, Feb. 9, 1996]

§ 23.791 Passenger information signs.

For those airplanes in which the flightcrew members cannot observe the

other occupants' seats or where the flightcrew members' compartment is separated from the passenger compartment, there must be at least one illuminated sign (using either letters or symbols) notifying all passengers when seat belts should be fastened. Signs that notify when seat belts should be fastened must:

(a) When illuminated, be legible to each person seated in the passenger compartment under all probable lighting conditions; and

(b) Be installed so that a flightcrew member can, when seated at the flightcrew member's station, turn the illumination on and off.

[Doc. No. 27806, 61 FR 5167, Feb. 9, 1996]

§ 23.803 Emergency evacuation.

(a) For commuter category airplanes, an evacuation demonstration must be conducted utilizing the maximum number of occupants for which certification is desired. The demonstration must be conducted under simulated night conditions using only the emergency exits on the most critical side of the airplane. The participants must be representative of average airline passengers with no prior practice or rehearsal for the demonstration. Evacuation must be completed within 90 seconds.

(b) In addition, when certification to the emergency exit provisions of § 23.807(d)(4) is requested, only the emergency lighting system required by § 23.812 may be used to provide cabin interior illumination during the evacuation demonstration required in paragraph (a) of this section.

[Amdt. 23-34, 52 FR 1831, Jan. 15, 1987, as amended by Amdt. 23-46, 59 FR 25773, May 17, 1994]

§ 23.805 Flightcrew emergency exits.

For airplanes where the proximity of the passenger emergency exits to the flightcrew area does not offer a convenient and readily accessible means of evacuation for the flightcrew, the following apply:

(a) There must be either one emergency exit on each side of the airplane, or a top hatch emergency exit, in the flightcrew area;

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(b) Each emergency exit must be located to allow rapid evacuation of the crew and have a size and shape of at least a 19- by 20-inch unobstructed rectangular opening; and

(c) For each emergency exit that is not less than six feet from the ground, an assisting means must be provided. The assisting means may be a rope or any other means demonstrated to be suitable for the purpose. If the assisting means is a rope, or an approved device equivalent to a rope, it must be—

(1) Attached to the fuselage structure at or above the top of the emergency exit opening or, for a device at a pilot's emergency exit window, at another approved location if the stowed device, or its attachment, would reduce the pilot's view; and

(2) Able (with its attachment) to withstand a 400-pound static load.

[Doc. No. 26324, 59 FR 25773, May 17, 1994]

§ 23.807 Emergency exits.

(a) *Number and location.* Emergency exits must be located to allow escape without crowding in any probable crash attitude. The airplane must have at least the following emergency exits:

(1) For all airplanes with a seating capacity of two or more, excluding airplanes with canopies, at least one emergency exit on the opposite side of the cabin from the main door specified in § 23.783 of this part.

(2) [Reserved]

(3) If the pilot compartment is separated from the cabin by a door that is likely to block the pilot's escape in a minor crash, there must be an exit in the pilot's compartment. The number of exits required by paragraph (a)(1) of this section must then be separately determined for the passenger compartment, using the seating capacity of that compartment.

(4) Emergency exits must not be located with respect to any propeller disk or any other potential hazard so as to endanger persons using that exit.

(b) *Type and operation.* Emergency exits must be movable windows, panels, canopies, or external doors, openable from both inside and outside the airplane, that provide a clear and unobstructed opening large enough to admit a 19-by-26-inch ellipse. Auxiliary locking devices used to secure the airplane

must be designed to be overridden by the normal internal opening means. The inside handles of emergency exits that open outward must be adequately protected against inadvertent operation. In addition, each emergency exit must—

(1) Be readily accessible, requiring no exceptional agility to be used in emergencies;

(2) Have a method of opening that is simple and obvious;

(3) Be arranged and marked for easy location and operation, even in darkness;

(4) Have reasonable provisions against jamming by fuselage deformation; and

(5) In the case of acrobatic category airplanes, allow each occupant to abandon the airplane at any speed between V_{SO} and V_D ; and

(6) In the case of utility category airplanes certificated for spinning, allow each occupant to abandon the airplane at the highest speed likely to be achieved in the maneuver for which the airplane is certificated.

(c) *Tests.* The proper functioning of each emergency exit must be shown by tests.

(d) *Doors and exits.* In addition, for commuter category airplanes, the following requirements apply:

(1) In addition to the passenger entry door—

(i) For an airplane with a total passenger seating capacity of 15 or fewer, an emergency exit, as defined in paragraph (b) of this section, is required on each side of the cabin; and

(ii) For an airplane with a total passenger seating capacity of 16 through 19, three emergency exits, as defined in paragraph (b) of this section, are required with one on the same side as the passenger entry door and two on the side opposite the door.

(2) A means must be provided to lock each emergency exit and to safeguard against its opening in flight, either inadvertently by persons or as a result of mechanical failure. In addition, a means for direct visual inspection of the locking mechanism must be provided to determine that each emergency exit for which the initial opening movement is outward is fully locked.