Federal Aviation Administration, DOT § 23.785

(3) There must be a means of opening which is simple and obvious and is arranged and marked inside and outside so that the door can be readily located, unlocked, and opened, even in darkness.

(4) The door must meet the marking requirements of § 23.811 of this part.

(5) The door must be reasonably free from jamming as a result of fuselage deformation in an emergency landing.

(6) Auxiliary locking devices that are actuated externally to the airplane may be used but such devices must be overridden by the normal internal opening means.

(d) In addition, each external passenger or crew door, for a commuter category airplane, must comply with the following requirements:

(1) Each door must be openable from both the inside and outside, even though persons may be crowded against the door on the inside of the airplane.

(2) If inward opening doors are used, there must be a means to prevent occupants from crowding against the door to the extent that would interfere with opening the door.

(3) Auxiliary locking devices may be used.

(e) Each external door on a commuter category airplane, each external door forward of any engine or propeller on a normal, utility, or acrobatic category airplane, and each door of the pressure vessel on a pressurized airplane must comply with the following requirements:

(1) There must be a means to lock and safeguard each external door, including cargo and service type doors, against inadvertent opening in flight, by persons, by cargo, or as a result of mechanical failure or failure of a single structural element, either during or after closure.

(2) There must be a provision for direct visual inspection of the locking mechanism to determine if the external door, for which the initial opening movement is not inward, is fully closed and locked. The provisions must be discernible, under operating lighting conditions, by a crewmember using a flashlight or an equivalent lighting source.

(3) There must be a visual warning means to signal a flight crewmember if the external door is not fully closed and locked. The means must be designed so that any failure, or combination of failures, that would result in an erroneous closed and locked indication is improbable for doors for which the initial opening movement is not inward.

(f) In addition, for commuter category airplanes, the following requirements apply:

(1) Each passenger entry door must qualify as a floor level emergency exit. This exit must have a rectangular opening of not less than 24 inches wide by 48 inches high, with corner radii not greater than one-third the width of the exit.

(2) If an integral stair is installed at a passenger entry door, the stair must be designed so that, when subjected to the inertia loads resulting from the ultimate static load factors in §23.561(b)(2) and following the collapse of one or more legs of the landing gear, it will not reduce the effectiveness of emergency egress through the passenger entry door.

(g) If lavatory doors are installed, they must be designed to preclude an occupant from becoming trapped inside the lavatory. If a locking mechanism is installed, it must be capable of being unlocked from outside of the lavatory.


§ 23.785 Seats, berths, litters, safety belts, and shoulder harnesses.

There must be a seat or berth for each occupant that meets the following:

(a) Each seat/restraint system and the supporting structure must be designed to support occupants weighing at least 215 pounds when subjected to the maximum load factors corresponding to the specified flight and ground load conditions, as defined in the approved operating envelope of the airplane. In addition, these loads must be multiplied by a factor of 1.33 in determining the strength of all fittings and the attachment of—
§ 23.785

(1) Each seat to the structure; and

(2) Each safety belt and shoulder harness to the seat or structure.

(b) Each forward-facing or aft-facing seat/restraint system in normal, utility, or acrobatic category airplanes must consist of a seat, a safety belt, and a shoulder harness, with a metal-to-metal latching device, that are designed to provide the occupant protection provisions required in § 23.562.

Other seat orientations must provide the same level of occupant protection as a forward-facing or aft-facing seat with a safety belt and a shoulder harness, and must provide the protection provisions of § 23.562.

(c) For commuter category airplanes, each seat and the supporting structure must be designed for occupants weighing at least 170 pounds when subjected to the inertia loads resulting from the ultimate static load factors prescribed in § 23.561(b)(2) of this part. Each occupant must be protected from serious head injury when subjected to the inertia loads resulting from these load factors by a safety belt and shoulder harness, with a metal-to-metal latching device, for the front seats and a safety belt, or a safety belt and shoulder harness, with a metal-to-metal latching device, for each seat other than the front seats.

(d) Each restraint system must have a single-point release for occupant evacuation.

(e) The restraint system for each crewmember must allow the crewmember, when seated with the safety belt and shoulder harness fastened, to perform all functions necessary for flight operations.

(f) Each pilot seat must be designed for the reactions resulting from the application of pilot forces to the primary flight controls as prescribed in § 23.395 of this part.

(g) There must be a means to secure each safety belt and shoulder harness, when not in use, to prevent interference with the operation of the airplane and with rapid occupant egress in an emergency.

(h) Unless otherwise placarded, each seat in a utility or acrobatic category airplane must be designed to accommodate an occupant wearing a parachute.

(i) The cabin area surrounding each seat, including the structure, interior walls, instrument panel, control wheel, pedals, and seats within striking distance of the occupant's head or torso (with the restraint system fastened) must be free of potentially injurious objects, sharp edges, protuberances, and hard surfaces. If energy absorbing designs or devices are used to meet this requirement, they must protect the occupant from serious injury when the occupant is subjected to the inertia loads resulting from the ultimate static load factors prescribed in § 23.561(b)(2) of this part, or they must comply with the occupant protection provisions of § 23.562 of this part, as required in paragraphs (b) and (c) of this section.

(j) Each seat track must be fitted with stops to prevent the seat from sliding off the track.

(k) Each seat/restraint system may use design features, such as crushing or separation of certain components, to reduce occupant loads when showing compliance with the requirements of § 23.562 of this part; otherwise, the system must remain intact.

(l) For the purposes of this section, a front seat is a seat located at a flight crewmember station or any seat located alongside such a seat.

(m) Each berth, or provisions for a litter, installed parallel to the longitudinal axis of the airplane, must be designed so that the forward part has a padded end-board, canvas diaphragm, or equivalent means that can withstand the load reactions from a 215-pound occupant when subjected to the inertia loads resulting from the ultimate static load factors of § 23.561(b)(2) of this part. In addition—

(1) Each berth or litter must have an occupant restraint system and may not have corners or other parts likely to cause serious injury to a person occupying it during emergency landing conditions; and

(2) Occupant restraint system attachments for the berth or litter must withstand the inertia loads resulting from the ultimate static load factors of § 23.561(b)(2) of this part.

(n) Proof of compliance with the static strength requirements of this section for seats and berths approved as
§ 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;