

## FARs Related to Rating

### Sec. 25.815 Width of aisle.

The passenger aisle width at any point between seats must equal or exceed the values in the following table:

Passenger seating capacity	Minimum passenger aisle width (inches)	
	Less than 25 in. from floor	25 in. and more from floor
10 or less	/1/ 12	15
11 through 19	12	20
20 or more	15	20

/1/ A narrower width not less than 9 inches may be approved when substantiated by tests found necessary by the Administrator.

### Sec. 25.817 Maximum number of seats abreast.

On airplanes having only one passenger aisle, no more than three seats abreast may be placed on each side of the aisle in any one row.

### Sec. 25.783 Doors.

- (a) Each cabin must have at least one easily accessible external door.
- (b) There must be a means to lock and safeguard each external door against opening in flight (either inadvertently by persons or as a result of mechanical failure or failure of a single structural element either during or after closure). Each external door must be openable from both the inside and the outside, even though persons may be crowded against the door on the inside of the airplane. Inward opening doors may be used if there are means to prevent occupants from crowding against the door to an extent that would interfere with the opening of the door. The means of opening must be simple and obvious and must be arranged and marked so that it can be readily located and operated, even in darkness. Auxiliary locking devices may be used.
- (c) Each external door must be reasonably free from jamming as a result of fuselage deformation in a minor crash.
- (d) Each external door must be located where persons using them will not be endangered by the propellers when appropriate operating procedures are used.

(e) There must be a provision for direct visual inspection of the locking mechanism to determine if external doors, for which the initial opening movement is not inward (including passenger, crew, service, and cargo doors), are fully closed and locked. The provision must be discernible under operational lighting conditions by appropriate crewmembers using a flashlight or equivalent lighting source. In addition, there must be a visual warning means to signal the appropriate flight crewmembers if any external door is not fully closed and locked. The means must be designed such 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) External doors must have provisions to prevent the initiation of pressurization of the airplane to an unsafe level if the door is not fully closed and locked. In addition, it must be shown by safety analysis that inadvertent opening is extremely improbable.

(g) Cargo and service doors not suitable for use as emergency exits need only meet paragraphs (e) and (f) of this section and be safeguarded against opening in flight as a result of mechanical failure or failure of a single structural element.

(h) Each passenger entry door in the side of the fuselage must qualify as a Type A, Type I, or Type II passenger emergency exit and must meet the requirements of Secs. 25.807 through 25.813 that apply to that type of passenger emergency exit.

(i) If an integral stair is installed in a passenger entry door that is qualified as a passenger emergency exit, the stair must be designed so that under the following conditions the effectiveness of passenger emergency egress will not be impaired:

- (1) The door, integral stair, and operating mechanism have been subjected to the inertia forces specified in Sec. 25.561(b)(3), acting separately relative to the surrounding structure.
- (2) The airplane is in the normal ground attitude and in each of the attitudes corresponding to collapse of one or more legs of the landing gear.
- (j) All lavatory doors must be designed to preclude anyone from becoming trapped inside the lavatory, and if a locking mechanism is installed, it be capable of being unlocked from the outside without the aid of special tools.

#### Sec. 25.785 Seats, berths, safety belts, and harnesses.

(a) A seat (or berth for a nonambulant person) must be provided for each occupant who has reached his or her second birthday.

(b) Each seat, berth, safety belt, harness, and adjacent part of the airplane at each station designated as occupiable during takeoff and landing must be designed so that a person making proper use of these facilities will not suffer serious injury in an emergency landing as a result of the inertia forces specified in Secs. 25.561 and 25.562.

(c) Each seat or berth must be approved.

(d) Each occupant of a seat that makes more than an 18-degree angle with the vertical plane containing the airplane centerline must be protected from head injury by a safety belt and an

energy absorbing rest that will support the arms, shoulders, head, and spine, or by a safety belt and shoulder harness that will prevent the head from contacting any injurious object. Each occupant of any other seat must be protected from head injury by a safety belt and, as appropriate to the type, location, and angle of facing of each seat, by one or more of the following:

- (1) A shoulder harness that will prevent the head from contacting any injurious object.
- (2) The elimination of any injurious object within striking radius of the head.
- (3) An energy absorbing rest that will support the arms, shoulders, head, and spine.

(e) Each berth must be designed so that the forward part has a padded end board, canvas diaphragm, or equivalent means, that can withstand the static load reaction of the occupant when subjected to the forward inertia force specified in Sec. 25.561. Berths must be free from corners and protuberances likely to cause injury to a person occupying the berth during emergency conditions.

(f) Each seat or berth, and its supporting structure, and each safety belt or harness and its anchorage must be designed for an occupant weight of 170 pounds, considering the maximum load factors, inertia forces, and reactions among the occupant, seat, safety belt, and harness for each relevant flight and ground load condition (including the emergency landing conditions prescribed in Sec. 25.561). In addition:

- (1) The structural analysis and testing of the seats, berths, and their supporting structures may be determined by assuming that the critical load in the forward, sideward, downward, upward, and rearward directions (as determined from the prescribed flight, ground, and emergency landing conditions) acts separately or using selected combinations of loads if the required strength in each specified direction is substantiated. The forward load factor need not be applied to safety belts for berths.
- (2) Each pilot seat must be designed for the reactions resulting from the application of the pilot forces prescribed in Sec. 25.395.
- (3) The inertia forces specified in Sec. 25.561 must be multiplied by a factor of 1.33 (instead of the fitting factor prescribed in Sec. 25.625) in determining the strength of the attachment of each seat to the structure and each belt or harness to the seat or structure.

(g) Each seat at a flight deck station must have a restraint system consisting of a combined safety belt and shoulder harness with a single-point release that permits the flight deck occupant, when seated with the restraint system fastened, to perform all of the occupant's necessary flight deck functions. There must be a means to secure each combined restraint system when not in use to prevent interference with the operation of the airplane and with rapid egress in an emergency.

(h) Each seat located in the passenger compartment and designated for use during takeoff and landing by a flight attendant required by the operating rules of this chapter must be:

- (1) Near a required floor level emergency exit, except that another location is acceptable if the emergency egress of passengers would be enhanced with that location. A flight attendant seat must be located adjacent to each Type A emergency exit. Other flight

attendant seats must be evenly distributed among the required floor level emergency exits to the extent feasible.

- (2) To the extent possible, without compromising proximity to a required floor level emergency exit, located to provide a direct view of the cabin area for which the flight attendant is responsible.
- (3) Positioned so that the seat will not interfere with the use of a passageway or exit when the seat is not in use.
- (4) Located to minimize the probability that occupants would suffer injury by being struck by items dislodged from service areas, stowage compartments, or service equipment.
- (5) Either forward or rearward facing with an energy absorbing rest that is designed to support the arms, shoulders, head, and spine.
- (6) Equipped with a restraint system consisting of a combined safety belt and shoulder harness unit with a single point release. There must be means to secure each restraint system when not in use to prevent interference with rapid egress in an emergency.
- (i) Each safety belt must be equipped with a metal to metal latching device.
- (j) If the seat backs do not provide a firm handhold, there must be a handgrip or rail along each aisle to enable persons to steady themselves while using the aisles in moderately rough air.

(k) Each projecting object that would injure persons seated or moving about the airplane in normal flight must be padded.

- (l) Each forward observer's seat required by the operating rules must be shown to be suitable for use in conducting the necessary enroute inspection.