

Aircraft Door & Emergency Exit Types and Role Considerations

Sofema Aviation Services (SAS) www.sassofia.com considers the different types of Exit & Emergency Exit in use in Commercial Aircraft.

- Aircraft Exit Doors types & Location
- Aircraft Exit Doors Size Details

Type I. This type is a floor-level exit with a rectangular opening of not less than 24 inches wide by 48 inches high, with corner radii not greater than eight inches.

Type II. This type is a rectangular opening of not less than 20 inches wide by 44 inches high, with corner radii not greater than seven inches.

- Type II exits must be floor-level exits unless located over the wing, in which case they must not have a step-up inside the airplane of more than 10 inches nor a step-down outside the airplane of more than 17 inches.

Type III. This type is a rectangular opening of not less than 20 inches wide by 36 inches high with corner radii not greater than seven inches, and with a step-up inside the airplane of not more than 20 inches.

- If the exit is located over the wing, the step-down outside the airplane may not exceed 27 inches.

Type IV. This type is a rectangular opening of not less than 19 inches wide by 26 inches high, with corner radii not greater than 6.3 inches, located over the wing, with a step-up inside the airplane of not more than 29 inches and a step-down outside the airplane of not more than 36 inches.

Ventral. This type is an exit from the passenger compartment through the pressure shell and the bottom fuselage skin.

- The dimensions and physical configuration of this type of exit must allow at least the same rate of egress as a Type I exit with the airplane in the normal ground attitude, with landing gear extended.

Tailcone. This type is an aft exit from the passenger compartment through the pressure shell and through an openable cone of the fuselage aft of the pressure shell.

- The means of opening the tail cone must be simple and obvious and must employ a single operation.

Type A. This type is a floor-level exit with a rectangular opening of not less than 42 inches wide by 72 inches high, with corner radii not greater than seven inches.

Type B. This type is a floor-level exit with a rectangular opening of not less than 32 inches wide by 72 inches high, with corner radii not greater than six inches.

Type C. This type is a floor-level exit with a rectangular opening of not less than 30 inches wide by 48 inches high, with corner radii not greater than 10 inches.

Definitions

Step Down Distance - Step down distance, as used in this section, means the actual distance between the bottom of the required opening and a usable foot hold, extending out from the fuselage, that is large enough to be effective without searching by sight or feel.

Over-sized exits - Openings larger than those specified in this section, whether or not of rectangular shape, may be used if the specified rectangular opening can be inscribed within the opening and the base of the inscribed rectangular opening meets the specified step-up and step-down heights.

Asymmetry. Exits of an exit pair need not be diametrically opposite each other nor of the same size; however, the number of passenger seats permitted based on the smaller of the two exits.

Uniformity. Exits must be distributed as uniformly as practical, taking into account passenger seat distribution.

Location.

- Each required passenger emergency exit must be accessible to the passengers and located where it will afford the most effective means of passenger evacuation.
- If only one floor-level exit per side is prescribed, and the airplane does not have a tail cone or ventral emergency exit, the floor-level exits must be in the rearward part of the passenger compartment unless another location affords a more effective means of passenger evacuation.
- If more than one floor-level exit per side is prescribed, and the airplane does not have a combination cargo and passenger configuration, at least one floor-level exit must be located in each side near each end of the cabin.

Note - For an airplane that is required to have more than one passenger emergency exit for each side of the fuselage, no passenger emergency exit shall be more than 60 feet from any adjacent passenger emergency exit on the same side of the same deck of the fuselage, as measured parallel to the airplane's longitudinal axis between the nearest exit edges.

Type and number required.

The maximum number of passenger seats permitted depends on the type and number of exits installed in each side of the fuselage.

The maximum number of passenger seats permitted for each exit of a specific type installed in each side of the fuselage is as follows:

Type A	110
Type B	75
Type C	55
Type I	45
Type II	40
Type III	35
Type IV	9

Introduction Exit Requirement's per Passenger Configuration

For a passenger seating configuration of 1 to 9 seats, there must be at least one Type IV or larger over wing exit in each side of the fuselage or,

- if over wing exits are not provided, at least one exit in each side that meets the minimum dimensions of a Type III exit.

For a passenger seating configuration of more than 9 seats, each exit must be a Type III or larger exit.

For a passenger seating configuration of 10 to 19 seats, there must be at least one Type III or larger exit in each side of the fuselage.

For a passenger seating configuration of 20 to 40 seats, there must be at least two exits, one of which must be a Type II or larger exit, in each side of the fuselage.

For a passenger seating configuration of 41 to 110 seats, there must be at least two exits, one of which must be a Type I or larger exit, in each side of the fuselage.

For a passenger seating configuration of more than 110 seats, the emergency exits in each side of the fuselage must include at least two Type I or larger exits.

- **Note** The combined maximum number of passenger seats permitted for all Type III exits is 70, and the combined maximum number of passenger seats permitted

for two Type III exits in each side of the fuselage that are separated by fewer than three passenger seat rows is 65.

If a Type A, Type B, or Type C exit is installed, there must be at least two Type C or larger exits in each side of the fuselage.

If a passenger ventral or tailcone exit is installed and that exit provides at least the same rate of egress as a Type III exit with the airplane in the most adverse exit opening condition that would result from the collapse of one or more legs of the landing gear, an increase in the passenger seating configuration is permitted as follows:

- For a ventral exit, 12 additional passenger seats.
- For a tail cone exit incorporating a floor level opening of not less than 20 inches wide by 60 inches high, with corner radii not greater than seven inches, in the pressure shell and incorporating an approved assist means in accordance with 25.810(a), 25 additional passenger seats.
- For a tail cone exit incorporating an opening in the pressure shell which is at least equivalent to a Type III emergency exit with respect to dimensions, step-up and step-down distance, and with the top of the opening not less than 56 inches from the passenger compartment floor, 15 additional passenger seats.

Other exits. The following exits also must meet the applicable emergency exit requirements of 25.809 through 25.812, and must be readily accessible:

- Each emergency exit in the passenger compartment in excess of the minimum number of required emergency exits.
- Any other floor-level door or exit that is accessible from the passenger compartment and is as large or larger than a Type II exit, but less than 46 inches wide.

Any other ventral or tail cone passenger exit.

- Ditching emergency exits for passengers. Whether or not ditching certification is requested, ditching emergency exits must be provided in accordance with the following requirements, (unless the emergency exits required by this section already meet the requirement)
 - For airplanes that have a passenger seating configuration of nine or fewer seats, excluding pilot seats, one exit above the waterline in each side of the airplane, meeting at least the dimensions of a Type IV exit.
 - For airplanes that have a passenger seating configuration of 10 or more seats, excluding pilot seats, one exit above the waterline in a side of the airplane, meeting at least the dimensions of a Type III exit for each unit (or

- part of a unit) of 35 passenger seats, but no less than two such exits in the passenger cabin, with one on each side of the airplane.
- The passenger seat/ exit ratio may be increased through the use of larger exits, or other means, provided it is shown that the evacuation capability during ditching has been improved accordingly.

Note - If it is impractical to locate side exits above the waterline, the side exits must be replaced by an equal number of readily accessible overhead hatches of not less than the dimensions of a Type III exit, except that for airplanes with a passenger configuration of 35 or fewer seats, excluding pilot seats, the two required Type III side exits need be replaced by only one overhead hatch.

Flight crew emergency exits.

For airplanes in which the proximity of passenger emergency exits to the flight crew area does not offer a convenient and readily accessible means of evacuation of the flight crew, and for all airplanes having a passenger seating capacity greater than 20, flight crew exits shall be located in the flight crew area. Such exits shall be of sufficient size and so located as to permit rapid evacuation by the crew.

- One exit shall be provided on each side of the airplane; or, alternatively, a top hatch shall be provided. Each exit must encompass an unobstructed rectangular opening of at least 19 by 20 inches unless satisfactory exit utility can be demonstrated by a typical crewmember.

Next Steps

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