

**§ 238.435 Interior fittings and surfaces.**

(a) Each seat back and seat attachment in a passenger car shall be designed to withstand, with deflection but without total failure, the load associated with the impact into the seat back of an unrestrained 95th-percentile adult male initially seated behind the seat back, when the floor to which the seat is attached decelerates with a triangular crash pulse having a peak of 8g and a duration of 250 milliseconds.

(b) Each seat back in a passenger car shall include shock-absorbent material to cushion the impact of occupants with the seat ahead of them.

(c) The ultimate strength of each seat attachment to a passenger car body shall be sufficient to withstand the following individually applied accelerations acting on the mass of the seat plus the mass of a seat occupant who is a 95th-percentile adult male:

- (1) Lateral: 4g; and
- (2) Vertical: 4g.

(d)(1) Other interior fittings shall be attached to the passenger car body with sufficient strength to withstand the following individually applied accelerations acting on the mass of the fitting:

- (i) Longitudinal: 8g;
- (ii) Lateral: 4g; and
- (iii) Vertical: 4g.

(2) Fittings that can be expected to be impacted by a person during a collision, such as tables between facing seats, shall be designed for the mass of the fitting plus the mass of the number of occupants who are 95th-percentile adult males that could be expected to strike the fitting, when the floor of the passenger car decelerates with a triangular crash pulse having a peak of 8g and a duration of 250 milliseconds.

(e) The ultimate strength of the interior fittings and equipment in power car control cabs shall be sufficient to resist without failure loads due to the following individually applied accelerations acting on the mass of the fitting or equipment:

- (1) Longitudinal: 12g;
- (2) Lateral: 4g; and
- (3) Vertical: 4g.

(f) To the extent possible, interior fittings, except seats, shall be recessed or flush-mounted. Corners and sharp

edges shall be avoided or otherwise padded.

(g) Energy-absorbent material shall be used to pad surfaces likely to be impacted by occupants during collisions or derailments.

(h) Luggage stowage compartments shall be enclosed, and have an ultimate strength sufficient to resist loads due to the following individually applied accelerations acting on the mass of the luggage that the compartments are designed to accommodate:

- (1) Longitudinal: 8g;
- (2) Lateral: 4g; and
- (3) Vertical: 4g.

(i) If, for purposes of showing compliance with the requirements of this section, the strength of a seat attachment is to be demonstrated through sled testing, the seat structure and seat attachment to the sled that are used in such testing must be representative of the actual seat structure in, and seat attachment to, the rail vehicle subject to the requirements of this section. If the attachment strength of any other interior fitting is to be demonstrated through sled testing, for purposes of showing compliance with the requirements of this section, such testing shall be conducted in a similar manner.

[64 FR 25660, May 12, 1999, as amended at 67 FR 19992, Apr. 23, 2002]

**§ 238.437 Emergency communication.**

A means of emergency communication throughout a train shall be provided and shall include the following:

(a) Except as further specified, transmission locations at each end of each passenger car, adjacent to the car's end doors, and accessible to both passengers and crewmembers without requiring the use of a tool or other implement. If the passenger car does not exceed 45 feet in length, or if the passenger car was ordered prior to May 12, 1999, only one transmission location is required;

(b) Transmission locations that are clearly marked with luminescent material;

(c) Clear and understandable operating instructions at or near each transmission location; and