

shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. The handrail shall have a cross-sectional diameter between 1¼ inches and 1½ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than ⅛ inch. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the vehicle.

(d) *Securement devices*—(1) *Design load.* Securement systems on vehicles with GVWRs of 30,000 pounds or above, and their attachments to such vehicles, shall restrain a force in the forward longitudinal direction of up to 2,000 pounds per securement leg or clamping mechanism and a minimum of 4,000 pounds for each mobility aid. Securement systems on vehicles with GVWRs of up to 30,000 pounds, and their attachments to such vehicles, shall restrain a force in the forward longitudinal direction of up to 2,500 pounds per securement leg or clamping mechanism and a minimum of 5,000 pounds for each mobility aid.

(2) *Location and size.* The securement system shall be placed as near to the accessible entrance as practicable and shall have a clear floor area of 30 inches by 48 inches. Such space shall adjoin, and may overlap, an access path. Not more than 6 inches of the required clear floor space may be accommodated for footrests under another seat provided there is a minimum of 9 inches from the floor to the lowest part of the seat overhanging the space. Securement areas may have fold-down seats to accommodate other passengers when a wheelchair or mobility aid is not occupying the area, provided the seats, when folded up, do not obstruct the clear floor space required. (See Fig. 2)

(3) *Mobility aids accommodated.* The securement system shall secure common wheelchairs and mobility aids and shall either be automatic or easily attached by a person familiar with the system and mobility aid and having average dexterity.

(4) *Orientation.* In vehicles in excess of 22 feet in length, at least one securement device or system required by

paragraph (a) of this section shall secure the wheelchair or mobility aid facing toward the front of the vehicle. Additional securement devices or systems shall secure the wheelchair or mobility aid facing forward, or rearward with a padded barrier, extending from a height of 38 inches from the vehicle floor to a height of 56 inches from the vehicle floor with a width of 18 inches, laterally centered immediately in back of the seated individual. In vehicles 22 feet in length or less, the required securement device may secure the wheelchair or mobility aid either facing toward the front of the vehicle or facing rearward, with a padded barrier as described. Additional securement locations shall be either forward or rearward facing with a padded barrier. Such barriers need not be solid provided equivalent protection is afforded.

(5) *Movement.* When the wheelchair or mobility aid is secured in accordance with manufacturer's instructions, the securement system shall limit the movement of an occupied wheelchair or mobility aid to no more than 2 inches in any direction under normal vehicle operating conditions.

(6) *Stowage.* When not being used for securement, or when the securement area can be used by standees, the securement system shall not interfere with passenger movement, shall not present any hazardous condition, shall be reasonably protected from vandalism, and shall be readily accessed when needed for use.

(7) *Seat belt and shoulder harness.* For each wheelchair or mobility aid securement device provided, a passenger seat belt and shoulder harness, complying with all applicable provisions of part 571 of this title, shall also be provided for use by wheelchair or mobility aid users. Such seat belts and shoulder harnesses shall not be used in lieu of a device which secures the wheelchair or mobility aid itself.

§ 38.25 Doors, steps and thresholds.

(a) *Slip resistance.* All aisles, steps, floor areas where people walk and floors in securement locations shall have slip-resistant surfaces.

(b) *Contrast.* All step edges, thresholds and the boarding edge of ramps or

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lift platforms shall have a band of color(s) running the full width of the step or edge which contrasts from the step tread and riser, or lift or ramp surface, either light-on-dark or dark-on-light.

(c) *Door height.* For vehicles in excess of 22 feet in length, the overhead clearance between the top of the door opening and the raised lift platform, or highest point of a ramp, shall be a minimum of 68 inches. For vehicles of 22 feet in length or less, the overhead clearance between the top of the door opening and the raised lift platform, or highest point of a ramp, shall be a minimum of 56 inches.

§ 38.27 Priority seating signs.

(a) Each vehicle shall contain sign(s) which indicate that seats in the front of the vehicle are priority seats for persons with disabilities, and that other passengers should make such seats available to those who wish to use them. At least one set of forward-facing seats shall be so designated.

(b) Each securement location shall have a sign designating it as such.

(c) Characters on signs required by paragraphs (a) and (b) of this section shall have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10, with a minimum character height (using an upper case "X") of $\frac{5}{16}$ inch, with "wide" spacing (generally, the space between letters shall be $\frac{1}{16}$ the height of upper case letters), and shall contrast with the background either light-on-dark or dark-on-light.

§ 38.29 Interior circulation, handrails and stanchions.

(a) Interior handrails and stanchions shall permit sufficient turning and maneuvering space for wheelchairs and other mobility aids to reach a securement location from the lift or ramp.

(b) Handrails and stanchions shall be provided in the entrance to the vehicle in a configuration which allows persons with disabilities to grasp such assists from outside the vehicle while starting to board, and to continue using such assists throughout the boarding and fare collection process. Handrails shall have a cross-sectional diameter between $1\frac{1}{4}$ inches and $1\frac{1}{2}$ inches or shall

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provide an equivalent grasping surface, and have eased edges with corner radii of not less than $\frac{1}{8}$ inch. Handrails shall be placed to provide a minimum $1\frac{1}{2}$ inches knuckle clearance from the nearest adjacent surface. Where on-board fare collection devices are used on vehicles in excess of 22 feet in length, a horizontal passenger assist shall be located across the front of the vehicle and shall prevent passengers from sustaining injuries on the fare collection device or windshield in the event of a sudden deceleration. Without restricting the vestibule space, the assist shall provide support for a boarding passenger from the front door through the boarding procedure. Passengers shall be able to lean against the assist for security while paying fares.

(c) For vehicles in excess of 22 feet in length, overhead handrail(s) shall be provided which shall be continuous except for a gap at the rear doorway.

(d) Handrails and stanchions shall be sufficient to permit safe boarding, on-board circulation, seating and standing assistance, and alighting by persons with disabilities.

(e) For vehicles in excess of 22 feet in length with front-door lifts or ramps, vertical stanchions immediately behind the driver shall either terminate at the lower edge of the aisle-facing seats, if applicable, or be "dog-legged" so that the floor attachment does not impede or interfere with wheelchair footrests. If the driver seat platform must be passed by a wheelchair or mobility aid user entering the vehicle, the platform, to the maximum extent practicable, shall not extend into the aisle or vestibule beyond the wheel housing.

(f) For vehicles in excess of 22 feet in length, the minimum interior height along the path from the lift to the securement location shall be 68 inches. For vehicles of 22 feet in length or less, the minimum interior height from lift to securement location shall be 56 inches.

§ 38.31 Lighting.

(a) Any stepwell or doorway immediately adjacent to the driver shall have, when the door is open, at least 2 foot-candles of illumination measured on the step tread or lift platform.