

**281—44.4(285) Construction of vehicles for children with mobility disabilities.** The following apply to vehicles constructed for the transportation of children with mobility disabilities of such severity that the children are unable to use the regular service door entrance. Vehicles constructed for transporting these children will meet all FMVSS relating to school bus construction and Iowa school bus construction requirements as described in rules 281—44.1(285) and 281—44.3(285). The following standards also apply:

**44.4(1) General provisions.**

a. Certification of these vehicles as multipurpose passenger vehicles due to capacity rating do not relieve the manufacturer of the responsibility to provide a completed vehicle meeting all FMVSS for school buses as well as rules 281—44.1(285) through 281—44.3(285) relating to the construction of a school bus.

b. Alteration of the interior of the vehicle is permissible if all seats and barriers, component parts, anchorages, wheelchair securement devices, and placement of seats and barriers and wheelchair securement devices comply with federal provisions as of date of manufacture. All equipment will be supplied by the original manufacturer and installed per the original manufacturer's specification. Alteration that would return the vehicle to conventional passenger seating will include removal of all wheelchair securement devices, removal of the power lift, and rendering the special service door inoperable.

c. Any school bus that is used for the transportation of children who use a wheelchair or other restraining devices that prevent use of the regular service entrance will be equipped with a power lift located on the right side of the bus body located either forward of or behind the rear wheels on a Type A, B, C, or D bus.

d. The actual rated seating capacity following modification of a vehicle will be placed at locations indicated in paragraph 44.3(34) "e."

**44.4(2) Specific provisions.**

a. *Aisle.* Aisles leading from the wheelchair placements to the special service door and either the service door or one 30-inch wide emergency door will be a minimum of 30 inches in width.

(1) Aisles leading from wheelchair placements to all other doors will be at least 20 inches in width.

(2) A wheelchair securement position will not be located directly in front of a power lift door.

b. *Barriers.*

(1) Barriers will comply with and be installed as required by federal standards as of date of manufacture.

(2) A heavy-duty padded barrier or stanchion will be provided immediately to the rear of the step well opening extending from the side wall of the bus to approximately the aisle to prevent a person from accidentally falling into the step well opening from floor level. A barrier or stanchion as mentioned above will also be placed directly behind the driver.

(3) The power lift mechanism will be padded and protected to prevent a child from accidentally getting any part of the child's body caught in the power lift mechanism or special service door at any time.

(4) All crash/restraining barriers will be the same height as the passenger seating height in the bus.

c. *Glazing.* Tinted glazing may be installed in all doors, windows, and windshield.

d. *Heaters.* An additional heater(s) may be installed in the rear portion of the bus on or behind wheel wells.

e. *Identification.* Buses with wheelchair lifts used for transporting children with physical disabilities will display the International Symbol of Accessibility located on the front and rear of the vehicle below the window line. Emblems will be white on blue, shall not exceed 12 × 12 inches in size, and may be reflectorized.

f. *Power lift.*

(1) The power lift will meet all FMVSS and ADA requirements at the time of manufacture.

(2) The power lift may be located either forward of or behind the rear wheels of the vehicle on the right side of Type A, B, C and D buses.

(3) All lift controls will be portable and conveniently located on the inside of the bus near the special service door opening. Controls will be easily operable from inside or outside the bus. A master cut-off switch controlling on/off power to the lift will be located in the driver's compartment. There will be a means of preventing the lift platform from falling while in operation due to a power failure.

(4) Power lifts will be equipped so they may be manually raised or lowered in the event of power failure of the power lift mechanism.

(5) All edges of the platform will be designed to restrain a wheelchair and to prevent the operator's feet from being entangled during the raising and lowering process.

(6) A circuit breaker, fuse, or other electrical protection device will be installed between the power source and the lift motor if electrical power is used.

(7) When hydraulic pressure is used in the lifting process, the system will be equipped with adjustable limit switches or bypass valves to prevent excessive pressure from building in the hydraulic system when the platform reaches the full "up" position or full "down" position.

(8) All exposed parts of the power lift that are in direct line with the forward or rearward travel of a wheelchair student or attendant will be padded with energy-absorbing material.

(9) Power lifts are not allowed on vehicles with single rear wheels.

*g. Ramps.* Ramps are not permitted on Type A, B, C, and D buses.

*h. Regular service entrance.*

(1) An additional fold-out or slide-out step may be provided that will provide for the step level to be no more than 6 inches from the ground level to assist persons with disabilities that prohibit the use of the standard entrance step. This step, when stored and not in use, will not impede or in any way block the normal use of the entrance.

(2) On power lift-equipped vehicles, service entrance steps will be the full width of the step well, excluding the thickness of the doors in the open position.

(3) In addition to the standard handrail required in all buses, an additional handrail may be provided on all specially equipped school buses. If so equipped, this rail will be located on the opposite side of the entrance door from the required rail and will meet the same provisions for handrails.

*i. Seating and seating arrangements.*

(1) All seat spacing, seats, and related components will comply with applicable federal standards as of date of manufacture.

(2) All seats are to be forward facing. Side-facing seats are prohibited.

(3) Seat frames may be equipped by the school bus body manufacturer with rings or other devices to which passenger restraint systems may be attached.

*j. Special light.* Light(s) will be placed inside the bus to sufficiently illuminate the lift area and activated from the door area.

*k. Special service opening.*

(1) There will be an enclosed service opening located on the right side (curb side) of the body to accommodate a wheelchair lift on Type A, B, C and D buses.

(2) The opening will be at least 52 inches high and 40 inches wide and with doors open will be of sufficient width to allow for the installation of various power lifts and related accessories as well as a lifting platform at least 32 inches wide.

(3) The opening will be positioned far enough to the rear of the regular service door opening to prevent interference of the special service door(s) opening with the regular service doors.

(4) A drip molding will be installed above the opening to effectively divert water from the entrance.

(5) Doorposts, headers, and all floor sections around this special opening will be reinforced to provide strength and support equivalent to adjacent side wall and floor construction of an unaltered model.

(6) A header pad at least 3 inches wide, extending the width of special service door, will be placed above the opening on the inside of the bus.

*l. Special service door(s).*

(1) All doors will open outwardly.

(2) All doors will have positive fastening devices to hold doors in the open position.

(3) All doors will be equipped with heavy-duty hinges and will be hinged to the side of the bus.

(4) All doors will be weather sealed; and on buses with double doors, each door will be of the same size and constructed so a flange on the forward door overlaps the edge of the rear door when closed.

(5) If optional power doors are installed, the design will permit release of the doors for opening and closing by the attendant from the platform inside the bus.

(6) When manually operated dual doors are provided, the rear door will have at least a one-point fastening device to the header. The forward-mounted door will have at least three-point fastening devices: One will be to the header, one will be to the floor line of the body, and the other will be into the rear door. These locking devices will afford maximum safety when the doors are in the closed position. The door and hinge mechanism is to be of a strength that will provide the same type of use as that of a standard entrance door.

(7) If the door is made of one-piece construction, the door will be equipped with a slidebar, cam-operated locking device.

(8) Each door will have installed a safety glass window, set in a waterproof manner, and aligned with the lower line of adjacent sash and as nearly as practical to the same size as other bus windows.

(9) Door materials, panels, and structural strength will be equivalent to the conventional service and emergency doors. Color, rub rail extensions, lettering, and other exterior features will match adjacent sections of the body.

(10) The door(s) will be equipped with a device(s) that will actuate a flashing visible signal located in the driver's compartment when the door(s) is not securely closed. (An audible signal is not permitted.)

*m. Special student restraining devices.*

(1) Each wheelchair station will be equipped with a lap and torso restraint system that meets applicable FMVSS.

(2) Special restraining devices such as shoulder harnesses, lap belts, and chest restraint systems may be installed to the seats providing that the devices do not require the alteration in any form of the school bus seat, seat cushion, framework, or related seat components. These restraints are for the sole purpose of restraining passengers.

(3) All child safety restraint systems will comply with the requirements of FMVSS No. 213, Child Restraint Systems.

*n. Wheelchair securement systems.*

(1) Securement systems for wheelchairs will meet or exceed applicable FMVSS.

(2) All wheelchair securement systems or devices will be placed in the vehicle so that, when secured, both wheelchair and occupant are facing toward the front of the vehicle. Fastening devices resulting in a side-facing wheelchair and occupant are not permissible.

(3) Straps or seat-belt devices running through the wheels of the wheelchair or around the student seated in the wheelchair for the purpose of securing the wheelchair to the floor are not acceptable.

(4) The wheelchair securement system(s) will be located in a school bus so that when a wheelchair is not secured in place the floor attachment system does not extend above the floor level more than ½ inch.

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