LCB File No. R016-98

PROPOSED REGULATION OF THE

NEVADA STATE BOARD OF EDUCATION

The Nevada State Board of Education/Nevada State Board for Occupational Education will be holding a public hearing on these regulation amendments on March 6 or 7, 1998.

Explanation: Matter in Italics is new; matter in brackets [ ] is material to be omitted.

AUTHORITY: NRS 392.400, 392.410

SCHOOL BUS STANDARDS
General Requirements

392.500 School buses: Conformity with minimum national standards required.

1. Every school bus purchased:

(a) After February 10, 1972, and before [June 1, 1986] *March 1, 1996*, for the transportation of pupils must conform to the minimum national standards for school buses established by the Secretary of Transportation pursuant to the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. §§ 1382 et seq.), and more stringent standards adopted by the state board of education in effect at the time the bus was purchased; or

(b) On or after [October 13, 1987] *March 1, 1996*, must conform to the [minimum] national standards for school buses established by the Secretary of Transportation pursuant to the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. §§ 1382 et seq.), *with the exception of the* [and the more stringent] standards *identified* in NAC 392.501 to [392.687] *392.689*, inclusive.

2. Nothing in this section shall be construed to prevent the Federal Government or the government of any state or political subdivision thereof from establishing a safety requirement applicable to motor vehicles or motor vehicle equipment procured for its own use if such requirement imposes a higher standard of performance than that required to comply with the otherwise applicable federal standard.

392.501 Applicability of regulations. NAC 392.501 to [392.645] *392.621*, inclusive, apply to all school buses, unless a different standard is required pursuant to NAC 392.655 to [392.687] *392.689*, inclusive, for school buses designed to transport [handicapped] pupils *with disabilities*.

Delete NAC 392.503 through 392.511

392.513 Front bumper. The front bumper must:

1. Be furnished by the manufacturer of the chassis as part of the chassis *unless there is a specific arrangement between the chassis manufacturer and body manufacturer that the body manufacturer will furnish the front bumper*;

2. *Unless an energy absorbing bumper is used, the front bumper shall be pressed steel channel or equivalent material at least 3/16 inch thick and not less than 8 inches wide and shall* extend beyond the most forward part of the body, including the grille, hood and fenders, and extend to the outer edges of the fenders at the top line of the bumper; and,

3. Be of sufficient strength to permit:

(a) Pushing a vehicle, *except for breakaway bumper ends*, of equal gross vehicle weight without permanent distortion to the bumper, chassis or body;

(b) The bus to be lifted by a *chain that is passed under the bumper or through* [vertical force applied to the bottom of] the bumper *if holes are provided for this purpose* without damaging either the bumper or its mountings.

4. Tow eyes or hooks may be furnished and attached so as not to project beyond the front bumper. Tow eyes or hooks attached to the frame chassis shall be furnished by the chassis manufacturer and installation shall be in accordance with chassis manufacturer's standards.

Delete NAC 392.515 through 392.557

NAC 392.559 Undercoating. The manufacturer of the chassis, *or agent thereof,* [shall] *may* coat the underside[s] of *steel or metallic-constructed* [the] front fenders with a rustproofing compound certified by its manufacturer to meet or exceed all requirements of paragraph 3.4 of Federal specification TT-C-520[b]*B*, using the modified test.

Delete NAC 392.561 through 392.563

NAC 392.565 Alarm warning when bus is in reverse. An audible alarm [may] *shall* be installed behind the rear axle that will automatically sound when the bus is in reverse. It must comply with the backup alarm standards SAE 994b of the Society of Automotive Engineers, specifying *a minimum of* 97 [plus or minus 4] decibels [per an option unit] for vehicles with rubber tires.

Delete NAC 392.567

NAC 392.569 Rear Bumper.

1. The rear bumper must:

(a) Be of pressed steel channel or an equivalent material at least 3/16 of an inch thick and *shall be a minimum of* 8 inches wide *on all type A-II buses, and shall be a minimum of 9-1/2 inches wide on types A-1, B, C and D buses*;

(b) Be of sufficient strength to permit pushing by another vehicle without permanent distortion;

(c) Be wrapped around the back corners of the bus and extend forward at least 12 inches, measured from the most rear point of the body and the floor line;

(d) Extend at least 1 inch beyond the most rear part of the body surface measured at the floor line;

(e) Be attached to the frame of the chassis to permit easy removal;

(f) Be braced to protect against an impact from the side or rear; and,

(g) Be attached so as to discourage hitching of rides.

2. [The bumper provided by the manufacturer of the chassis may be used on type A buses.] *A self-absorbing energy bumper system may be used for the rear bumper and shall be so attached as to prevent the hitching of rides and be of sufficient strength to withstand repeated impacts without damage to the bumper, chassis, or body according to the following Federal Motor Vehicle Safety Standards performance standards:*

1) 2.0 mph fixed barrier impact (Federal Motor Vehicle Safety Standards cart and barrier test);

2) 4.0 mph corner impact at 30 degrees (Part 581, DFR Title 49); or,

3) 5.0 mph center impact (Part 581, CFR Title 49);

4. The manufacturer of the energy absorbing bumper system shall provide evidence from an approved test facility that their product conforms to the above performance standards;

5. Height of rear bumper must meet current FMCSR 393.86 standards at the time the bus was manufactured.

NAC 392.571 [Paint.] *Color*. The body of the school bus [to include the hood, cowl and fenders,] must be painted National School Bus Yellow, except:

1. The exterior trim of the body[, rub rails, wheels, front bumper, lamp hood, arrow for the emergency door, and any lettering] must be painted black;

2. The rear bumper may be painted black or covered with reflective material.

3. The [top] *roof of the bus* may be painted white *extending down to the drip rails on the sides of the body except that the front and rear roof caps shall remain National School Bus Yellow*. The hood may be painted with non-reflective paint.

Delete NAC 392.573 through 392.579

NAC 392.581 Fire extinguisher

1. Each bus must be equipped with at least one pressurized, dry chemical fire extinguisher complete with hose. The fire extinguisher must be approved by the Underwriters Laboratories, Inc., with a rating [2A10BC] *2A3OBC (5 lbs.)* or greater. The extinguisher must be mounted in a bracket, located in the driver's compartment and readily accessible to the driver and passengers. A pressure gauge must be mounted on the extinguisher that is easily read without moving the extinguisher from its mounting.

2. The operating mechanism must be sealed with a seal which will not interfere with the use of the first extinguisher. [The extinguisher must be all metal, except for the hose for the discharge.]

NAC 392.583 Kit for first aid *and warning devices*.

1. Each bus must have a [sealed,] removable kit for first aid that is resistant to moisture and dust. It must be mounted in an accessible place within the driver's compartment. The place must be marked to indicate its location. A list of the contents must be affixed to the inside of the front cover of the kit.

2. Each kit must include:

(a) Two rolls of adhesive tape, 1 inch by 2 1/2 yards;

(b) Twenty-four sterile gauze pads, 3 inches x 3 inches;

(c) One hundred adhesive bandages, 3/4 inch x 3 inches;

(d) [Twelve] *Eight* bandage compresses, 2 inches;

(e) [Twelve] *Ten* bandage compresses, 3 inches;

(f) Two sterile gauze roller bandages, 2 inches by 6 yards;

(g) Two triangular bandages, 40 inches x 36 inches and 54 inches, each with two safety pins;

(h) Three sterile gauze pads, 36 inches x 36 inches;

(i) Three sterile eye pads; [and]

(j) One pair of scissors, with rounded ends*;*

(k) One pair latex gloves; and

(l) One mouth-to-mouth airway.

3. Each bus shall contain at least three reflectorized triangle road warning devices mounted in an accessible place. The mounting location in Type A-II vehicles is optional. These devices must be the requirements set by the Federal Motor Vehicles Safety Standards.

4. Any emergency equipment may be mounted in an enclosed compartment, provided the compartment is labeled in not less that one-inch letters, stating the piece(s) of equipment contained therein.

(New) NAC 392.584 Body Fluid Cleanup Kit

1. Each bus shall have a removable, moisture proof body fluid cleanup kit accessible to the driver. It shall be properly mounted and identified as a body fluid cleanup kit.

2. The contents must include a minimum of:

(a) One red-10 frame fluid solidified;

(b) Two BZK wipes;

(c) One Sandier hand wipe;

(d) One Wiper towel;

(e) Two latex gloves;

(f) One safety shield;

(g) One Red biohazard bag;

2. The body fluid clean-up kit may be mounted in an enclosed compartment, provided the compartment is labeled in not less that one-inch letters, stating the piece(s) of equipment contained therein.

Delete NAC 392.585 through 392.591

NAC 392.593 Insulation

1. The ceiling and walls of the bus must be insulated with material to deaden sound and reduce vibration to a minimum. If thermal insulation is [used] *specified*, it must be fire resistant, [and] approved by the Underwriters Laboratories, Inc.*, and be*

approximately one and one half inches thick with a minimum R-value of 5.5. Insulation shall be installed to prevent sagging.

2. If insulation for the floor is [used] *required,* it must be:

(a) Five ply nominal [and at least] 5/8 [of an] inch thick *plywood*; or

(b) *A material e*[E]qual to or exceed the properties of softwood plywood for exterior uses of C-D grade as specified in standards issued by the Department of Commerce.

(c) When plywood is used, all exposed edges shall be sealed. Type A-II buses must have a 1/2 of an inch thick plywood floor:

3. Ceiling and walls shall be insulated with proper material to deaden sound and to reduce vibration to a minimum.

NAC 392.595 Interior.

1. The interior of the bus must not have projections which might cause an injury. All ceilings and walls must be lined. If the construction of the ceiling contains lapped joints, the forward panel must be lapped by rear panel and any exposed edges must be beaded, hemmed, flanged or otherwise treated to reduce sharp edges. *Buses may be equipped with storage compartment for tools, tire chains, and/or tow chains.*

2. *Interior overhead storage compartments may be provided if they meet the following criteria;*

(a) Meet head protection requirements of FMVSS 222, where applicable;

(b) Have a maximum rated capacity for each compartment;

(c) Have all corners and edges rounded with a minimum radius of 1 inch or padded equivalent to door header padding

(d) Must be attached to the bus sufficiently to withstand a force equal to twenty times the maximum rated capacity; and

(e) Shall have no protrusions greater than one-quarter inch.

3. The driver's area forward of the foremost padded barriers must be large enough to mount the required safety and operating equipment.

[3.] *4.* Every bus must be constructed so that the level of noise for the occupant nearest to the primary source of noise in the vehicle does not exceed [90] *85* decibels base audible *when tested according to the Noise Test Procedure*.

Delete NAC 392.597 through 392.609

392.611 Rub rails. (Leave in, no changes)

1. Except as otherwise provided in subsection 4, each bus must have the following rub rails:

(a) One rub rail located on each side of the bus, approximately at the level of the seat, that extends from the rear side of the entrance door completely around the body of the bus, except over the emergency door, to the point of curvature near the outside cowl on the left side.

(b) One rub rail located immediately below the bottom line of the window and protecting the same longitudinal area as the rub rail at the level of the seats except that it must only extend under all the windows along each side. This rub rail may be built in.

(c) One rub rail, located approximately at the line of the floor, that covers the same longitudinal area as the rub rail at seat level, except at the wheelhousings, and extends only from the rear of the entrance door completely around the body of the bus.

(d) One rub rail, located at the bottom of the skirt panel, that protects the same longitudinal area as the rub rail at the line of the floor, except at the wheelhousing, and extends only to the radii of the right and left rear corners.

2. All rub rails must be:

(a) Attached at each post of the body and all other upright structural members;

(b) At least 4 inches in width in there finished form;

(c) Corrugated or ribbed;

(d) Painted black; and

(e) Constructed of 16-gauge steel or a similar material of equivalent strength.

3. The three lower rub rails must be applied on the outside of the body of the bus, or outside of the posts of the body. Rub rails which are pressed in or snapped on do not satisfy this requirement.

The rub rails of types A and B buses that use the body provided by the manufacturer of the chassis, or types C and D buses that use a compartment for luggage or have the engine in the rear of the bus, need not extend around the rear corners.

Delete NAC 392.613 through 392.619

392.621 Tread of steps.

1. The tread of the steps must be constructed of at least 24-gauge, cold-roll steel designed with grooves which run perpendicularly to the length of the tread of the step.

2. The metal tread and the platform at the line of the floor must be permanently bonded to a rubber floor covering or other material with a resistance to wear and abrasion equal to top grade rubber[. The rubber floor covering must:] *and insulated from engine heat on forward controlled buses.*

3. Rubber portion of step treads shall have the following characteristics:

(a) Be ribbed, 3/16 of an inch deep and have a white nosing of 1.5 inches as an integral piece without any joint;

(b) Be specially compounded for resistance to abrasion and for a high coefficient of friction;

(c) Be flexible enough to be bent around a mandrel of .5 inch at 130 degrees Fahrenheit and 20 degrees Fahrenheit without breaking, cracking or crazing; and

(d) Have a hardness of 85 to 95 as indicated on a durometer.

Delete NAC 392.623 through 392.645

Buses for Transportation of [Handicapped Pupils] ***Individuals with Disabilities***

392.655 Power lift or ramp required. Any bus that is used for the transportation of pupils who are confined to a wheelchair or other restraining device, which restricts their use of the regular entrance door, must be equipped with a power lift or a ramp, whichever better meets the needs of the situation.

392.657 Width of aisles. All aisles leading to [the] *at least one* emergency door *and* from the *lift* area for a wheelchair must be at least 30 inches wide.

392.659 [Radio required] ***Communications*****.** A bus designed to transport pupils with special needs for transportation may be equipped with [a radio] *an electronic voice system* which provides two-way communication *at any point in the vehicles route*.

392.661 [Devices to fasten wheelchair to floor] ***Wheelchair/mobility aid securement and restraint system*****.**

1. [Devices to fasten a wheelchair to the floor must be provided and attached to the floor or walls or both to secure wheelchairs in a bus used to transport pupils who are

confined to wheelchairs. The devices must be of the type that are unlatched or disengaged manually. The devices must be designed to withstand forces up to 2,000 pounds for each tie down leg or clamping mechanisms or 4,000 pounds total for each wheelchair, whichever is less.

2. Additional fastening devices must be provided if required by the needs of the pupils using the bus.] *Each securement system location shall consist of a minimum of four anchorage points. A minimum of two anchorage points shall be located in front of the wheelchair/mobility aid and a minimum of two anchorage points shall be located in the rear. Each wheelchair/mobility aid location shall have not less than two floor anchorages for the occupant pelvic and the connected upper torso restraint.*

(a) Each floor anchorage shall be capable of withstanding a minimum force of 3,000 pounds when applied, as specified in Federal Motor Vehicle Safety Standards 222.

(b) When more than one occupant restraint share a common anchorage, the anchorage shall be capable of withstanding a minimum force of 3,000 pounds multiplied by the number of occupant restraints sharing the common anchorage in accordance with Federal Motor Vehicle Safety Standards 222.

(c) When a wheelchair/mobility aid securement device and an occupant restraint share a common anchorage, including occupant restraint designs that attach the occupant restraint to the securement device or the wheelchair/mobility aid, the anchorage shall be capable of withstanding the loads of both the securement device and occupant restraint applied simultaneously, in accordance with Federal Motor Vehicle Safety Standards 222.

2. The wheelchair/mobility aid securement system shall limit the movement of the occupied wheelchair/mobility aid to no more than 2 inches in any direction under normal driving conditions.

3. The securement and restraint system shall be located and installed such that when an occupied wheelchair mobility aid is secured, it does not block access to the lift door.

4. The securement system location shall have a minimum clear floor area of 30 inches by 48 inches.

5. Each securement device, if incorporating webbing or a strap assembly, shall be capable of withstanding a minimum force of 2,5000 pounds when tested in compliance with the requirements for type 1 safety belt systems in accordance with Federal Motor Vehicle Standards 209.

6. The securement system shall secure the wheelchair/mobility aid in such a manner that the attachments or coupling hardware will not become detached when any wheelchair/mobility aid component deforms, when one or more tires deflate, and without intentional operation of a release mechanism.

7. A device for storage of the securement and restraint system shall be provided. The storage device shall allow for clean storage of the system, shall keep the system securely contained within the passenger compartment, shall provide reasonable protection from vandalism, and shall enable the system to be readily accessed for use.

8. The entire securement and restraint system, including storage device shall meet the flammability standards established in Federal Motor Vehicle Safety Standards 302.

9. All securement and restraint system hardware and components shall be free of sharp or jagged areas and shall be of a non-corrosive material or treated to resist corrosion n accordance with Federal Motor Vehicle Safety Standards 209.

10. Each securement device (webbing or strap assembly) and restraint belt assembly shall be permanently and legibly marked or incorporate a non-removable label or tag which states that it conforms to all applicable Federal Motor Vehicle Safety Standards requirements, as well as the National Standards for School Buses, current edition. In addition, the system manufacturer or an authorized representative, upon request by the original titled purchaser, shall provide a notarized Certificate of Conformance, either original or photocopied, stating that the wheelchair/mobility aid securement and occupant restraint system meets all of the requirements as specified in Federal Motor Vehicle Safety Standards 222 and the National Standards for School Buses, current edition.

11. Each vehicle equipped with a securement and restraint system will be provided with the following information:

(a) A phone number where information can be obtained about installation, repair and parts;

(b) Detailed instruction regarding use, including a diagram showing the proper placement of the wheelchair/mobility aids and positioning of securement devices and occupant restraints, including correct belt angles. System manufacturer shall make available training materials to ensure proper use and maintenance of the system.

12. The securement and restraint system shall incorporate an identification scheme which will allow for the easy identification of the various components and their functions. It shall consist of one of the following, or combination thereof:

(a) The wheelchair/mobility aid securement (webbing or strap assemblies) and the occupant restraint belt assemblies shall be of contrasting color or color shade.

(b) The wheelchair/mobility aid securement device (webbing or strap assemblies) and the occupant restraint belt assemblies shall be clearly marked to indicate the proper wheelchair orientation in the vehicle, and the name and location for each device or belt assembly such as front, rear, lap belt, shoulder belt, etc.

13. The wheelchair/mobility aid securement and the occupant restraint system shall be designed, installed, and operated to accommodate passengers in a forward-facing orientation within the bus and shall comply with all applicable requirements of Federal Motor Vehicle Safety Standards 222. Gurney type devises shall be secured parallel to the side of each bus.

14. The wheelchair/mobility aid securement and the occupant restraint system, including the system track, floor plates, pockets, or other anchorages shall be provided by the same manufacturer, or be certified to be compatible by manufacturers of all equipment/systems used.

392.663 [Installation of additional heaters. If an additional heater is installed in a bus which transports physically handicapped pupils, it must be installed in the rear of the bus or on or behind the wheel wells.] ***Passenger Capacity Rating***. *In determining the passenger capacity of a school bus for purposes other than actual passenger load, any location in a school bus intended for securement of an occupied wheelchair/mobility aid during vehicle operations may be regarded as four designated seating positions. Similarly, each lift area may be regarded as four designated seating positions.*

392.665 Display of [universal handicapped symbol] *International Symbol of Accessibility*. A bus equipped with a lift for wheelchairs used for transporting physically

[handicapped] *disabled* pupils [may] *shall* display the [universal handicapped symbol on the front and rear of the vehicle] *International Symbol of Accessibility* below the windowline. The symbol must be white on blue, must not exceed 12 inches in size, and [may] *shall* be *reflectorized meeting U.S. Department of Transportation FHWA FP-85 standard*.

392.667 Standards for Power Lift.

1. If a power lift for a wheelchair is used, it must be located at the right side of the body, confined within the perimeter of the body of the bus when it is not extended, and not attached to the exterior of the bus. *The lift may be located on the left side of the bus if the bus is used primarily to deliver students to the left side of one way streets. The lift shall:*

(a) Permit both inboard and outboard facing of wheelchair and mobility aid user;

(b) Accommodate persons using walkers, crutches, canes or braces, or who would otherwise have difficulty using steps. The platform of the lift may be marked to indicate a preferred standing position; and,

(c) Incorporate an emergency method of deploying, lowering to ground level with a lift occupant, and raising and stowing the empty lift if the power to the lift fails. No manual emergency operation shall require more than two minutes to lower an occupied wheelchair to ground level. The emergency or manual method shall not permit the platform to be stowed or folded when occupied unless the lift is a rotary lift and is intended to be stowed while occupied.

(d) Be permanently and legibly marked or incorporate a non-removable label or tag which states that it conforms to all applicable requirements of the current National

Standards for School buses. The lift manufacturer, or an authorized representative, upon request of the original title purchaser, shall provide a notarized certificate of conformance, either original or photocopied, which states that the lift system meets the current National Standards for School buses.

2. The platform of the lift [must:] *shall :*

(a) [Be fitted on both sides and the rear with shield which extend above the line of the floor of the platform;

(b) Have edges designed to restrain the wheelchair and to prevent the operator's feet from being entangled while the platform is being raised or lowered;

(c) Have a restraining device attached to the outer edge of the platform to prohibit the wheelchair from rolling off the platform when the lift is in any position other than fully extended to ground level;

(d) Have a self-adjusting, skid resistant plate attached on the outer edge to minimize the incline from the platform to the ground which may also meet the requirement of paragraph (c);

(e) Be resistant to skids;

(f) Be locked in position mechanically by means other than a support or lug at the door when the platform is in the full up position; and,

(g) Accommodate a wheelchair which is 30 inches wide.]*be equipped with barriers to prevent any of the wheels of a wheelchair or mobility aid from rolling off the platform during its operation. The following requirements apply:*

(1) A moveable barrier or inherent design feature shall prevent a wheelchair or mobility aid from rolling off the edge closest to the vehicle until the platform is in its fully raised position.

(2) Each side of the lift platform which extends beyond the vehicle in its raised position shall have a barrier a minimum of 1-1/2 inches high. The barriers shall not interfere with maneuvering into or out of the aisle;

(3) The outer loading edge barrier which functions as a loading ramp when the lift is at ground level, shall be sufficient when raised or closed to prevent a wheelchair or mobility aid from riding over or defeating it, or a supplementary system shall be provided.;

(4) The outer barrier of the lift shall automatically raise or close or a supplementary system shall automatically engage and remain raised, closed or engaged at all times that the platform is more than 3 inches above the roadway or sidewalk and the platform is occupied; and,

(5) Alternatively, a barrier or system may be raised, lowered, opened, closed, engaged, or disengaged by the lift operator, provided an interlock or inherent design feature prevents the lift from rising unless the barrier is raised or closed or the supplementary system is engaged.

(b) Not deflect more than 3 degrees (exclusive of vehicle roll or pitch) in any direction between its unloaded position and its position when loaded with 600 pounds applied through a 26 inch by 26 inch test pallet at the center of the platform;

(c) Not have any opening between the platform surface and the raised barriers exceeding 5/8 inches in width. The following provisions also apply:

(1) At vehicle floor heights with the inner barrier down or retracted, if applicable, gaps between the forward lift platform edge and the vehicle floor shall not exceed 1/2 inches horizontally and 5/8 inches vertically;

(2) Platforms on semi-automatic lifts may have a hand hold not exceeding 1-1/2 inches by 4-1/2 inches located between the edge barriers.

(d) Not move at a rate exceeding 6 inches per second during the lowering and lifting of an occupant and shall not exceed 12 inches per second during deploying or stowing. This requirement does not apply to the deployment or stowage cycles of manually operated lifts. The maximum platform horizontal and vertical acceleration when occupied shall be 0.3 g.;

(e) Have a surface free of any protrusions over 1/4 inches and shall be slip resistant;

(f) Have a minimum clear width of 28-1/2 inches at the platform, a minimum clear width of 30 inches above the surface of the platform and a minimum clear length of 48 inches measured from 2 inches above the surface of the platform to 30 inches above the surface of the platform;

(g) Have provisions to prevent the deploying, falling, or folding any faster than 12 inches per second for platforms stowed in a vertical position or dropping of an occupant in the event of a single failure of any load carrying component.

(h) Be equipped with handrails on two sides which move in tandem with the lift and which shall be graspable and provide support to standees throughout the entire lift operation. The handrails shall:

(1) Have a usable component at least 8 inches long with the lower portion a minimum of 30 inches above the platform and the highest portion a maximum of 38 inches above the platform;

(2) Be capable of withstanding a force of 100 pounds concentrated at any point without permanent deformation of the rail or its supporting structure;

(3) Have a cross sectional diameter between 1-1/4 inches and 1-1/2 inches or an equivalent grasping surface;

(4) Have eased edges with corner radii of not less than 1/8 inches;

(5) Be placed to provide a minimum 1-1/2 inch knuckle clearance from the nearest adjacent surface; and,

(6) Shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the vehicle.

3. The lifting mechanism must be able to lift at least [800] *600* pounds [and must allow the platform to rest securely on the ground]. *Working parts, such as cables, pulleys, and shafts, which can be expected to wear and upon which the lift depends for support of the load, shall have a safety factor or at least six, based on the ultimate strength of the material. Non working parts, such as platform frame and attachment hardware which would not be expected to wear, shall have a safety factor of at least three, based on the ultimate strength of the material.*

4. Controls [must] *shall* be provided to operate the lift from inside or outside of the bus. [There must be a means of:

(a) Preventing the platform from falling while in operation because of power failure; and,

(b) Raising the lift manually during a power failure.] *The controls must:*

(a) Be interlocked with the vehicle brakes, transmission, or door, or shall provide other appropriate mechanisms or systems to ensure that the vehicle cannot be moved when the lift is not stowed and that the lift cannot be deployed unless the interlocks or systems are engaged.

(b) Allow the lift to be deployed at all levels normally encountered in the operating environment;

(c) Be of a momentary contact type requiring continuous manual pressure by the operator ;

(d) Shall not allow improper lift sequencing when the lift platform is occupied; and,

(e) Allow reversal of the lift operation sequence without allowing an occupied platform to fold or retract into the stowed position.

5. If electrical power is used, a *re-setable* circuit breaker [or fuse] must be installed between the source of power and the motor of the lift. *It shall be located as close as possible to the power source, but not within the passenger/driver compartment.*

6. The lift *design shall* [must be equipped with adjustable switches or by-pass valves to prevent excessive pressure from building in the hydraulic system when the platform reaches the full up or full down position] *prevent excessive pressure that could damage the lift system when the platform is fully lowered or raised, or that could jack the vehicle.*

7. Each vehicle equipped with a power lift shall provide the following information:

(a) A phone number where information can be obtained about installation, repair and parts.

(b) Detailed instructions, readily visible when the lift door is open, regarding use of the lift including a diagram showing the proper placement and positioning of wheelchair/mobility aids on lift.

(c) The lift manufacturer shall make available training materials to ensure the proper use and maintenance of the lift.

392.669 Standards for Ramp. If a ramp [for a special] device [for the transportation or safety of a handicapped individuals with disabilities] is used *in lieu of a mechanical lift*, it must:

1. *Meet all requirements of 36 CSR 1192.23 of the American's with Disability Act;*

2. Be of sufficient strength and rigidity to support the special device, the occupant of the device and the attendant*(s),* if any;

[2] *3*. Be equipped with a protective flange on each longitudinal side to keep the special device on the ramp;

[3] *4*. Have a floor [of nonskid construction] *constructed of non-skid material* ; [and,]

[4] *5*. Be designed and equipped with handles to permit one person to put the ramp in place [for use by the handicapped pupil] and return it to its place for storage;

6. Ramps installed in raised floor buses by manufacturers may be used for emergency evacuation purposes, but may not be used as a substitute for a lift when a lift is capable of servicing the need.

7. A readily accessible ramp may also be installed for emergency exit use. If stowed in the passenger compartment, the ramp must be properly secured and located away from general passenger contact. The ramp must not obstruct or restrict any aisle or exit while in its stowed or deployed position;

8. A ramp device which does not meet Americans With Disabilities Act requirements may be installed and used only when a power lift system is not adequate to load and unload students having special and unique needs. and,

9. All vehicles covered by this regulation shall provide a level change mechanism or boarding device and have sufficient clearances to permit a wheelchair or other mobility aid user to reach a securement location.

392.671 [Restraining Devices] *Occupant Restraint System*.

1. The frame of a seat may be equipped with attachments or devices to which belts, restraining harnesses or other devices may be attached. *Attached framework or anchorage devices, if installed, shall conform with Federal Motor Vehicle Safety Standards 210.*

2. [If a restraining device is used, it must:

(a) Have a strap at least 1-7/8 inches wide;

(b) Use a fabric of nylon web, similar to that used for seat belts in automobiles, or other fabric of comparable strength; and,

(c) Be designed to provide the restraint necessary to transport the handicapped pupil.] *Seat belt assemblies, if installed, shall conform to meet requirements in the Federal Motor Vehicle Safety Standards 209.*

3. The occupant restraint system shall be made of materials which do not stain, soil, or tear an occupant's clothing and which are resistant to water damage and fraying.

4. Each restraining system location shall have not less than one anchorage, of manufacturer's design, for the upper end of the upper torso restraint. The anchorage of each occupant's upper torso restraint shall be capable of withstanding a minimum force of 1,500 pounds when applied, as specified in Federal Motor Vehicle Safety Standards 222.

5. Each floor and wall anchorage which secures the occupant restraint system to the vehicle and which is not permanently attached, shall be of a positive latch design and shall not allow for any accidental disconnection.

[3. No more than one handicapped pupil may be placed in any restraining device at one time.]

6. Child restraint systems, which are used to facilitate the transportation of children who in other modes of transportation would be required to use a child, infant or booster seat, shall conform to Federal Motor Vehicle Safety Standards 213.

7. All attachment or coupling devises designed to be connected or disconnected frequently shall be accessible and operable without the use of tools or other mechanical assistance.

8. The securement system shall secure common wheelchair/mobility aids and be able to be attached easily by a person having average dexterity and who is familiar with the system .

392.673 Spacing of seats. The spacing of seats to accommodate any special devices for [handicapped children] *individuals with disabilities* may be altered if needs of the passengers so require. *All seats shall be forward facing.*

392.675 Illumination of lift. [A light must be placed inside the bus to illuminate the area of a lift. The light must be activated from the area of the door.] *Doorways in which lifts are installed, shall have, when lift is to be used, at least 2 foot candles of illumination measured on the floor of the bus immediately adjacent to the lift, and on the lift, when deployed at the vehicle floor level.*

392.677 Tinted glass and plastic. Tinted glass may be installed in all doors, windows and the windshield. [Tinted plastic may be installed in the windows behind the

driver's if it permits a minimum of 50 percent outside light coming through the window]

consistent with federal state and local regulations.

[**392.679 Exhaust system.**

1. Except as provided in subsection 2, the exhaust system must be attached to the chassis and routed to the left of the right frame rail to allow for the installation of a lift that travels through the floor on the right side of the vehicle. No part of the exhaust system may enter any portion of the passenger's or driver's compartment. The tail pipe must be constructed of seamless or electrically welded steel tubing of not less than 16 gauge.

2. On a type B bus, the tail pipe may be routed to the left or right for the exhaust to be emitted behind the left or right rear wheels.]

[392.681 Fuel tank. A fuel tank meeting the Federal Motor Vehicle Safety Standard 301 must be mounted by the manufacturer on the left or right side of the frame of the chassis or between the rails of the frame of the chassis.]

392.683 [Steps for] Regular *service* entrance. [In type C and D buses, there must be 3 steps of equal height in the regular entrance well. An additional fold out step may be installed to provide a step not more than 6 inches form the ground.]

1. On power lift equipped vehicles, steps shall be the full width of the step well, excluding the thickness of doors in open position.

2. A suitable device for easy grasping or holding shall be provided to assist passengers during entry or egress. The device shall allow for easy grasping or holding

and shall have no openings or pinch points which might entangle clothing, accessories or limbs.

392.685 [Standards for s[*Special service* entrance.

1. [The body of the bus may have a] *A* special *service* entrance to accommodate a lift [to load and unload pupils in wheelchairs. The entrance must be of sufficient width and depth to accommodate the lift, related accessories and the lifting platform.]] *must be provided unless the lift. is designed to operate within the regular service entrance and is capable of being stowed so that the regular service entrance is not blocked in any way or persons entering or exiting the entrance are not impeded in any way.* The door posts and headers of the entrance must be reinforced to provide support and strength equivalent to the areas of the side of the bus not used for doors.

2. The [opening of that entrance:

(a) Must be at least 30 inches wide when the doors are open;

(b) May be at any convenient point] *special service entrance and door shall be located* on the right of the bus [and far enough to the rear to prevent the door,] *and designed so as not to obstruct the regular service entrance* when open, from obstructing the right front regular entrance door; and

[(c) M] *The service entrance opening may* extend below the floor through the bottom of the skirt of the body, if reinforcements are installed at the front and rear of the opening in the floor to support the floor and give the same strength as other openings in the floor.

[3.] *4.* A drip molding must be installed above the opening of the entrance to divert water from the entrance.

5. A special service entrance door may be located on the left side of the bus if the bus is primarily used to deliver students to the left side of one way streets.

392.687 Doors for special entrance

1. [Two doors must be used for the special entrance for wheelchairs if the width of the opening exceeds 40 inches.] *A single door or double doors may be used for the special service entrance.*

2. The materials of the door and the panels and the structural strength must be equivalent to the regular entrance and emergency doors required for all buses. Color, lettering on rub rails and other exterior features must match the adjacent sections of the body.

3. If two manually operated doors are used, the rear door must have a device to fasten it to the header at least at one point. The forward door [must] *shall* have *at least three-point fastening* devices to fasten it to the header, to the *floor* line [of the floor] of the body and to the rear door. These devices must afford maximum safety when the doors are closed. The door and hinge mechanism must be of sufficient strength to provide the same type of use as that of a regular entrance door.

4. If power doors are used, they must allow for the release of the doors for opening and closing by the attendant from the platform inside the bus.

5. If A single door is used, the door shall be hinged to the forward side of the entrance unless doing so would obstruct the regular service entrance. If, due to the above condition, the door is hinged to the rearward side of the doorway, the door shall utilize a safety mechanism which will prevent the door from swinging open should the primary door latch fail.

6. If double doors are used, the system shall be designed to prevent the doors from being blown open by the wind and/or incorporate a safety mechanism to provide secondary protection should the primary latching mechanism fail.

[5] *7*. All doors *for special entrance* must:

(a) Open outward;

(b) Have positive fastening devices to hold doors open;

(c) Be sealed for protection against the weather; [and, on buses with two doors, be constructed with a flange on the forward door that overlaps the edge of the rear door when it is closed]

(d) Have a window set in rubber [that is within 1 inch of the lower line of any adjacent sash] *which are visually similar in size and location to adjacent non-door windows. Glazing shall be of the same type and tinting as standard fixed glass in other body locations.*

(e) Be equipped with padding at the top edge of the door opening. The pad shall be at least three inches wide and one inch thick and extend the full width of the door opening; and

[6]*8*. The door must have a device that will actuate *an audible* or a [red] flashing signal in the driver's compartment if the door is not securely closed and the ignition in the "on" position.

[7] *9*. A switch must be installed to prevent a lifting mechanism from operating if the *lift platform* door is closed.

392.389 Support equipment and accessories.

1. Each bus which is set up to accommodate wheelchair/mobility aids or other assistive or restraint devices which utilize belts, shall contain at least one belt cutter properly secured in a location within reach of the driver while belted into his/her driver's seat. The belt cutter shall be durable and designed to eliminate the possibility of the operator or others being cut during use.

2. Special equipment or supplies which are used on the bus for mobility assistance, health support, or safety purposes shall meet any local, federal or engineering standards which may apply, including proper identification. Equipment which may be used for these purposes include, but is not limited to:

(a) Wheelchairs and other mobile seating devices;

(b) Crutches, walkers, canes and other ambulating devices;

(c) Medical support equipment, such as:

(1) Oxygen bottles, which should be no larger than 22 cubic feet for liquid oxygen and 38 cubic feet for compressed gas, or ventilators;

(2) Tanks and valves should be located and positioned to protect them from direct sunlight, bus heater vents, or other heat sources; and

(3) Other equipment may include intravenous, and fluid drainage apparatus.

3. All portable equipment and special accessory items, including the above, shall be secured at the mounting location to withstand a pulling force of five times the weight of the item, or shall be retained in an enclosed latched compartment. The compartment shall be capable of withstanding forces applied to its interior equal to five times the weight of its contents without failure to the box's integrity and securement to the bus.