SUBCHAPTER 49A. STANDARDS FOR BUSES USED FOR PUPIL TRANSPORTATION MANUFACTURED JUNE 1993 THROUGH DECEMBER 2005

13:20-49A.1 Scope and purpose

(a) This subchapter shall be applicable to all motor vehicles registered in New Jersey originally designed by the manufacturer to carry 10 or more passengers, excluding the driver, operated by, or under contract with, a public or governmental agency, or religious or other charitable organization or corporation, or privately operated for compensation for the transportation of children to or from school for secular or religious education, school-connected activity, day camp, summer day camp, nursery school, child care center, preschool center or other similar places of education. All such motor vehicles shall be registered as school buses in accordance with N.J.S.A. 39:3-19.2 and shall comply with the rules set forth in this subchapter and in N.J.A.C. 13:20-49B, 49C and 49D, and all applicable Federal standards. A motor vehicle shall not be used for the purposes set forth in this subsection unless it has been registered as a school bus in accordance with N.J.S.A. 39:3-19.2 and complies with the rules set forth in this subchapter and in N.J.A.C. 13:20-49B, 49C and 49D, and all applicable Federal standards.

(b) Each school bus shall be inspected twice each year by the Motor Vehicle Commission's School Bus Inspection Unit to ensure that such vehicle is in safe and proper operating condition. The time and location of the inspections shall be established by the Chief Administrator or his or her designee.

(c) The rules set forth in this subchapter and in N.J.A.C. 13:20-49B, 49C and 49D shall not apply to autobuses approved for school use and subject to inspection by the Motor Vehicle Commission's Commercial Bus Inspection and Investigation Unit unless otherwise provided.

(d) An autobus subject to inspection by the Motor Vehicle Commission's Commercial Bus Inspection and Investigation Unit that is used for the transportation of children to or from school shall display a certificate of inspection issued by the Commission indicating school use. An autobus is exempt from displaying a certificate for school use issued by the Motor Vehicle Commission when being used on a preset franchised route and schedule or chartered for school-connected activities.

(e) A parent or legal guardian under contract with a district board of education to transport only his or her own child or children shall not be required to possess a commercial driver license or to use a motor vehicle registered as a school bus.

(f) The rules set forth in this subchapter and in N.J.A.C. 13:20-49B, 49C and 49D shall apply to school buses with a June 1993 through December 2005 chassis manufacture date unless otherwise provided. School buses manufactured prior to June 1993 shall comply with the standards in effect when the school bus was manufactured or converted.

(g) All equipment and components required by this subchapter and by N.J.A.C. 13:20-49B, 49C and 49D shall be maintained in proper operating condition at all times.

Amended by R.1994 d.404, effective August 1, 1994.
See: 26 N.J.R. 1997(a), 26 N.J.R. 3164(a).
Amended by R.2005 d.24, effective January 18, 2005.
See: 35 N.J.R. 5483(a), 37 N.J.R. 321(a).
Rewrote the section.

13:20-49A.2 Words and phrases defined

The following words and phrases, when used in N.J.A.C. 13:20-49A through 49D, shall have the following meanings unless the context clearly indicates otherwise. Any reference to direction is relative to the driver in a seated position.

"Completed vehicle" means a vehicle that requires no further manufacturing operation to perform its intended function.

"Curb weight" means the weight of a school bus or vehicle including a maximum capacity of all fluids.

"Driver" means the authorized licensed operator of the vehicle.

"Emergency brake" means the mechanism designed to stop a school bus or vehicle in case of service brake failure.

"FMVSS" means Federal Motor Vehicle Safety Standards.

"FMCSR" means Federal Motor Carrier Safety Regulations.

"GVW" means Gross Vehicle Weight. GVW is the total weight of a single vehicle plus its load.

"GVWR" means Gross Vehicle Weight Rating. GVWR is the value specified by the manufacturer as the maximum loaded weight of a single vehicle.

"Kph" mean kilometers per hour.

"Mph" means miles per hour.

"NSFSB" means National Standards for School Buses.

"Parking brake" means a mechanism designed to prevent the movement of a stationary vehicle.

"Passenger" means any person riding in a school bus or vehicle other than the driver.

"Passenger seat" means a seat other than the driver's seat.

"SAE" means Society of Automotive Engineers, Inc.

"SBMI" means School Bus Manufacturers Institute.

"School bus" or "bus" when used in this subchapter shall refer to Types A, B, C and D buses and shall be classified in the following manner:

1. A Type "A" school bus is a conversion or body constructed upon a van-type compact truck or a front-section vehicle, with a GVWR of 10,000 pounds or less, designed for carrying 10 to 16 passengers;

2. A Type "B" school bus is a conversion or body constructed and installed upon a van or front-section vehicle chassis, or stripped chassis, with a GVWR of more than 10,000 pounds, designed for carrying 10 to 25 passengers. Part of the engine is beneath and/or behind the windshield and beside the driver's seat. The entrance door is behind the front wheels;

3. A Type "C" school bus is a body installed upon a flat back cowl chassis with a GVWR of more than 10,000 pounds, designed for carrying 10 to 54 passengers. The engine is in front of the windshield, or part of the engine is beneath and/or behind the windshield and beside the driver's seat. The entrance door is behind the front wheels;

4. A Type "D" school bus is a body installed upon a chassis, with the engine mounted in the front, midship, or rear, with a GVWR of more than 10,000 pounds, designed for carrying 10 to 54 passengers. The engine may be behind the windshield and beside the driver's seat; it may be at the rear of the bus, behind the rear wheels, or midship between the front and rear axles. The entrance door is ahead of the front wheels;

5. A Type "I" school bus is any vehicle designed to transport 16 or more passengers, including the driver, used for the transportation of students to and from school or school related activities. This identification regulates the type of vehicle registration required by the New Jersey Motor Vehicle Commission; and

6. A Type "II" school bus is any vehicle designed to transport less than 16 passengers, including the driver, used for the transportation of students to and from school or school related activities. This identification regulates the type of vehicle registration required by the New Jersey Motor Vehicle Commission.

"School bus warning lamps" are eight alternately flashing red or amber lamps mounted horizontally both front and rear, intended to identify a vehicle as a school bus and to inform other users of the highway that the vehicle is stopped or about to stop.

"Service brake" means the primary mechanism designed to stop a motor vehicle.

"Strobe school bus warning lamps" means a school bus warning lamp system utilizing eight electronic sealed beam flash tubes.

"Webbed belt" means a narrow fabric belt woven with continuous filling yarns and finished selvages.

Amended by R.2006 d.249, effective July 3, 2006.
See: 38 N.J.R. 386(b), 38 N.J.R. 2835(a).
In definition "School bus", rewrote 5 and 6.

13:20-49A.3 Certification

(a) The chassis and/or body manufacturer and any manufacturer of school bus equipment required by this subchapter shall, upon request, provide evidence and/or certify to the Motor Vehicle Commission and the user that their product meets the minimum standards of this subchapter and all applicable FMVSS.

(b) Any person who alters, converts, or modifies a certified "completed vehicle" used to transport students shall certify to the Motor Vehicle Commission and the user that all modifications conform to applicable design, construction, testing, and performance standards contained in this chapter.

(c) School bus vendors who sell or lease buses for student transportation shall issue a "Vendor Certification Statement", to the buyer or lessee, signed by an authorized agent or officer of the company certifying that the bus meets all State and Federal requirements.

Amended by R.2006 d.249, effective July 3, 2006.
See: 38 N.J.R. 386(b), 38 N.J.R. 2835(a).
In (a) and (b), substituted "Motor Vehicle Commission" for "Division of Motor Vehicles".

SUBCHAPTER 49B. CHASSIS STANDARDS FOR BUSES USED FOR PUPIL TRANSPORTATION MANUFACTURED JUNE 1993 THROUGH DECEMBER 2005

13:20-49B.1 Air cleaner

(a) The engine intake air cleaner system shall be furnished and properly installed by the chassis manufacturer to meet engine manufacturer's specifications.

(b) The intake air system for diesel engines may have an air cleaner restriction indicator properly installed by the chassis manufacturer to meet engine specifications.

13:20-49B.2 Axles

The front axle and rear differential, including suspension assemblies, shall have a gross axle weight rating at ground at least equal to that portion of the load as would be imposed by the chassis manufacturer's maximum gross vehicle weight rating.

13:20-49B.3 Brakes

(a) A braking system, including service brake and parking brake, shall be provided.

(b) Buses using air or vacuum in the operation of the brake system shall be equipped with warning signals, readily audible and visible to the driver, that will give a continuous warning when the air pressure available in the system for braking is 60 pounds per square inch or less or the vacuum in the system available for braking is eight inches of mercury or less. The audible warning signal shall be capable of alerting the driver while the bus is being operated in traffic. An illuminated gauge shall be provided that will indicate to the driver the air pressure in pounds per square inch or the inches of mercury vacuum available.

1. Vacuum-assist brake systems shall have a reservoir used exclusively for brakes that shall be adequate to ensure loss in vacuum at full stroke application of not more than 30 percent when the engine is not running. The brake system on gas-powered engines shall include suitable and convenient connections for the installation of a separate vacuum reservoir.

2. The brake system dry reservoir shall be safeguarded by a check valve or equivalent device, that in the event of failure or leakage in its connection to the source of compressed air or vacuum, the stored dry air or vacuum shall not be depleted by the leakage or failure.

(c) Buses using a hydraulic assist-brake system shall be equipped with warning signals, readily audible and visible to the driver, that will provide continuous warning in the event of a loss of fluid flow from the primary source or loss of the electric source powering the backup system.

(d) The brake lines and booster assist lines shall be protected from excessive heat and vibration and shall be installed to prevent chafing.

(e) The brake system shall be designed to permit visual inspection of brake lining wear without removal of any chassis components.

(f) The parking brake shall hold the vehicle stationary, or to a limit of traction of the braked wheels, on a 20 percent grade under any condition of legal loading and on a surface free from snow, ice and loose material.

(g) When applied, the parking brake shall remain in an applied position with the capacity set forth in (f) above despite exhaustion of the source of energy used for the application or leakage of any kind.

(h) A parking brake lever shall be mounted to the right of the driver in a position that is easily accessible.

1. On Types A and B buses, the parking brake lever may be mounted in accordance with the chassis manufacturer's standards.

(i) The parking brake shall be equipped with a warning device visible to the driver which will indicate that the parking brake is on.

13:20-49B.4 Bumper, front

(a) The front bumper shall be furnished by the chassis manufacturer as part of the chassis.

1. The Type D bus front bumper may be furnished by the body or chassis manufacturer.

(b) The front bumper shall be of pressed steel channel or equivalent material at least 3/16 inch thick and not less than eight inches high and shall extend beyond the forward-most part of the body, grille, hood, and fenders and shall extend to outer edges of the fenders at the bumper top line.

(c) The front bumper, except breakaway bumper ends, shall be of sufficient strength to permit pushing a vehicle of equal gross vehicle weight without permanent distortion to bumper, chassis, or body.

(d) An energy absorbing front bumper, which conforms to current FMVSS test requirements, may be used. Its design shall incorporate a self-restoring energy absorbing system of sufficient strength to:

1. Push another vehicle of similar GVW without permanent distortion to the bumper, chassis, or body; and

2. Withstand repeated impacts without damage to the bumper, chassis or body according to current NSFSB.

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

13:20-49B.5 Clutch

The clutch torque capacity shall be equal to or greater than the engine torque output.

13:20-49B.6 Color

The chassis, including front bumper, shall be black. The cowl, fenders and hood shall be National School Bus Yellow. The hood may be painted non-reflective National School Bus Yellow. Wheels and rims shall be black, gray, white, or silver. The grille shall be chrome, silver, gray, or National School Bus Yellow.

13:20-49B.7 Drive shaft

Each segment of the drive shaft shall be equipped with a metal guard or guards around its circumference to prevent the drive shaft from whipping through the floor or dropping to the ground if broken.

13:20-49B.8 Electrical system

(a) Buses shall be equipped with a battery or batteries as specified by the manufacturer.

1. The storage battery shall have a minimum cold cranking capacity rating equal to the cranking current required for 30 seconds at 0 degrees Fahrenheit (-17.8°c) and a minimum reserve capacity rating of 120 minutes at 25 amps. Higher capacities may be required depending upon optional equipment and local environmental conditions.

2. When a battery or batteries are to be mounted by the body manufacturer on a sliding tray rather than the standard installation provided by the chassis manufacturer, the battery(ies) shall be temporarily mounted on the chassis frame by the chassis manufacturer. In this case, the final location of the battery(ies) and the appropriate cable lengths shall be according to current SBMI design objectives.

(b) Buses shall be equipped with an alternator.

1. A Type A bus shall have a minimum 60 ampere per hour alternator.

2. A Type B bus shall have a minimum 80 ampere per hour alternator.

3. Types C and D buses shall have an alternator with a minimum output rating of at least 100 amperes capable of producing a minimum of 50 percent of its maximum rated output at manufacturer's recommended engine idle speed.

4. Buses equipped with an electrical power lift, shall have a minimum 100 amps per hour alternator.

5. A direct-drive alternator is permissible in lieu of belt drive. Belt drive shall be capable of handling the rated capacity of the alternator with no detrimental effect on the other driven components.

6. Estimating the required alternator capacity shall be according to current SBMI design objectives.

(c) Wiring shall use a standard color and number coding and conform to current SAE standards.

1. The chassis shall be delivered to the user with a wiring diagram that coincides with the wiring of the chassis.

2. The chassis manufacturer shall install a readily accessible terminal strip or plug on the body side of the cowl, or at an accessible location in the engine compartment of buses designed without a cowl, that shall contain the following terminals for the body connections:

i. Main 100 amps. body circuit;

ii. Tail lamps;

iii. Right turn signal;

iv. Left turn signal;

v. Stop lamps;

vi. Back up lamps; and

vii. Instrument panel lights which are rheostat controlled by the headlamp switch.

13:20-49B.9 Engine fire extinguishers

Buses may be equipped with a fire extinguisher system for the engine compartment.

Amended by R.1994 d.404, effective August 1, 1994.
See: 26 N.J.R. 1997(a), 26 N.J.R. 3164(a).

13:20-49B.10 Exhaust system

(a) The exhaust pipe, muffler, and tailpipe shall be outside the bus body compartment and attached to the chassis.

(b) The exhaust system components shall not be located where their location would likely result in burning, charring, or damaging the electrical wiring, the fuel supply, or any combustible part of the bus.

1. The exhaust system on a gas-powered chassis shall be properly insulated from fuel tank connections by a securely attached metal shield at any point where it is 12 inches or less from fuel tank or tank connections.

i. When a metal shield is required, the metal shield shall provide a minimum of two inches clearance between the exhaust system components, the fuel system, and/or combustible components.

(c) The tailpipe diameter from muffler to the end shall comply with the chassis manufacturer's standard and shall be constructed of a corrosion resistant tubing material at least equal in strength and durability to 16-gauge steel tubing.

1. The exhaust system tailpipe shall terminate to the rear of all doors and windows designed to be opened for ventilation.

2. The exhaust system shall not discharge to the atmosphere immediately below an emergency exit, fuel tank or fuel tank fill pipe.

3. The exhaust system tailpipe of a bus powered by a gasoline engine shall extend to the rear bumper or to the left or right perimeter sides of the bus body and discharge to the atmosphere either:

i. At or within six inches forward of the rearmost part of the bus on either side; or

ii. Beyond the rear bus bumper up to a maximum of two inches.

4. The exhaust system tailpipe of a bus using fuel other than gasoline shall extend to the rear bumper or to the perimeter of the sides of the bus body and discharge to the atmosphere either:

i. At or within 15 inches forward of the rearmost part of the bus on the sides; or

ii. Beyond the rear bus bumper up to a maximum of two inches.

(d) The muffler shall be constructed of corrosion-resistant material.

13:20-49B.11 Fenders, front, Type C buses

(a) The total spread of the outer edges of the front fenders, measured at the fender line, shall exceed the total spread of front tires when front wheels are in straight-ahead position.

(b) Front fenders shall be properly braced and free from any body attachments.

13:20-49B.12 Frame

(a) The frame or its equivalent shall be of such design and strength characteristics to correspond with the standard practice for trucks of the same general load characteristics.

(b) Any frame modification shall not be for the purpose of extending the wheelbase.

(c) Holes in the top or bottom flanges, or side units of the frame, shall not be permitted except as provided in the original chassis frame. Welding to the frame shall be by the chassis manufacturer or as approved by the chassis manufacturer.

(d) Frame lengths shall be provided in accordance with current SBMI design objectives.

13:20-49B.13 Fuel tank

(a) The fuel tank or tanks of minimum 30 gallon capacity shall have a 25 gallon actual draw. If a fuel tank size, larger than 30 gallons is supplied, the actual draw shall be 83 percent of the tank capacity. The fuel tank(s) shall be filled and vented to the outside of the body, the location of which shall ensure that accidental fuel spillage will not drip or drain on any part of the exhaust system.

(b) No portion of the fuel system which is located to the rear of the engine compartment, except the filler tube, shall extend above the top of the chassis frame rail. Fuel lines shall be mounted to obtain maximum possible protection from the chassis frame.

(c) A fuel filter with replaceable element shall be installed between the fuel tank and the engine.

(d) The fuel tank installation shall be in accordance with current SBMI design objectives.

(e) An auxiliary tank may be added in accordance with current SBMI design objectives.

(f) A bus constructed with a power lift unit may have the fuel tank mounted on the left chassis frame rail or behind the rear wheels.

13:20-49B.14 Governor

(a) An engine governor may be installed.

(b) When an engine is mounted in the midship or rear of a bus, a governor shall be installed to limit engine speed to the maximum revolutions per minute recommended by the engine manufacturer, or a tachometer shall be installed so the engine speed may be known to the driver.

(c) A road-speed governor may be installed to limit road speed.

13:20-49B.15 Heating system

The chassis engine shall have plugged openings for the purpose of supplying hot water for the bus heating system. The opening shall be suitable for attaching a ¾ inch pipe thread/hose connector. The engine shall be capable of supplying water having a temperature of at least 170 degrees Fahrenheit at a flow rate of 50 pounds per minute at the return end of 30 feet of one inch inside diameter automotive hot water heater hose.

13:20-49B.16 Horn

Buses shall be equipped with dual horns of a standard make. Each horn shall be capable of producing a complex sound in a band of audio frequencies between 250 and 2,000 cycles per second.

13:20-49B.17 Instruments and instrument panel

(a) The chassis shall be equipped with the following instruments and gauges. Lights in lieu of gauges are not acceptable except as noted:

1. Speedometer;

2. Odometer which will give accrued mileage to seven digits including tenths of miles;

3. Voltmeter;

i. An ammeter with graduated charge and discharge with ammeter and its wiring compatible with generating capacities is permitted in lieu of a voltmeter;

4. Oil-pressure gauge;

5. Water temperature gauge;

6. Fuel gauge;

7. Upper beam headlight indicator;

8. Vacuum or air brake indicator gauge;

i. A light indicator in lieu of a gauge is permitted on buses equipped with a hydraulic-over-hydraulic brake system;

9. Turn signal indicator; and

10. Glow-plug indicator light, where appropriate.

(b) All instruments shall be easily accessible for maintenance and repair.

(c) Above instruments and gauges shall be mounted on an instrument panel in such a manner that each is clearly visible to the driver while in normal seated-belted position in accordance with current SBMI design objectives.

(d) The instrument panel shall have lamps of sufficient candlepower to illuminate all instruments, gauges and the shift selector indicator for an automatic transmission.

(e) All gauges and instruments must be appropriately identified.

13:20-49B.18 Oil filter

An oil filter with replaceable element shall be provided and shall be connected by flexible oil lines if it is not of built-in or engine mounted design. The oil filter shall have a minimum capacity of one quart.

13:20-49B.19 Openings

All openings in the floorboard or firewall between chassis and passenger compartment, such as for gearshift selector/lever and parking brake lever, shall be sealed.

13:20-49B.20 Passenger load

(a) The gross vehicle weight (GVW) is the sum of the chassis weight, plus the body weight, plus the driver's weight, plus total seated pupil weight.

1. For purposes of calculation:

i. The driver's weight is 150 pounds; and

ii. The pupil weight is 120 pounds per pupil.

(b) The GVW shall not exceed the chassis manufacturer's GVWR for the chassis.

(c) Buses with a GVWR of 26,001 pounds or more shall display the GVWR on the sides of the bus as required by the Motor Vehicle Commission.

Amended by R.2006 d.249, effective July 3, 2006.
See: 38 N.J.R. 386(b), 38 N.J.R. 2835(a).
In (c), deleted "in excess" following "GVWR", inserted "or more" and substituted "Motor Vehicle Commission" for "Division of Motor Vehicles".

13:20-49B.21 Power and gradeability

The GVW shall not exceed 185 pounds per published net horsepower of the engine at the manufacturer's recommended maximum number of revolutions per minute.

13:20-49B.22 Retarder system

A retarder system may be used which shall maintain the speed of the fully loaded school bus at 19.0 mph or 30 kph on a seven percent grade for 3.6 miles or six km.

13:20-49B.23 Shock absorbers

Buses shall be equipped with front and rear double-action shock absorbers compatible with manufacturer's rated axle capacity at each wheel location.

13:20-49B.24 Springs

(a) The capacity of the springs or suspension assemblies shall be commensurate with the chassis manufacturer's GVWR.

(b) If leaf type rear springs are used, they shall be of a progressive type.

13:20-49B.25 Steering gear

(a) The steering gear shall be approved by the chassis manufacturer and designed to assure safe and accurate performance when a vehicle is operated with maximum load and at maximum speed.

(b) The steering mechanism shall be accessible for external adjustment.

(c) No changes shall be made in the steering apparatus which are not approved by the chassis manufacturer.

(d) There shall be a clearance of at least two inches between the steering wheel and the cowl, instrument panel, windshield, or any other surface.

(e) Power steering is required and shall be of the integral type with integral valves.

(f) The steering system shall be designed to provide a means of lubrication for all wear points, if wear points are not permanently lubricated.

13:20-49B.26 Tires and rims

(a) Tires and rims of proper size and tires with load rating commensurate with chassis manufacturer's GVWR shall be provided.

(b) Tubeless tires mounted on one-piece drop center rims may be used.

(c) All tires shall be of the same size, construction and load rating. The load rating shall meet or exceed the GAWR in accordance with current applicable FMVSS.

1. Tires on Types C and D buses may be of more than one type construction provided all tires on the same axle are the same type of construction.

(d) If a bus is equipped with a spare tire and rim assembly, it shall be of the same size as those mounted on the bus.

(e) If a bus is equipped with a tire carrier, it shall be suitably mounted in an accessible location outside the passenger compartment.

(f) The tire tread depth shall at no time be less than 4/32 of an inch on the front tires and 2/32 of an inch on the rear tires as measured on two adjacent treads by a Dill gauge or its equivalent.

(g) Regrooved or recapped tires shall not be used on the front wheels of a bus.

(h) Dual rear tires shall be provided on Types B, C, and D buses.

(i) Tire chains, snow tires or all weather tires shall be used for the drive wheels to enhance the safe operation of the bus in areas of snow and ice.

13:20-49B.27 Transmission

(a) When an automatic transmission is used, it shall provide for not less than three forward speeds and one reverse speed.

(b) When a manual transmission is used, second gear and higher shall be synchronized except when incompatible with engine power. A minimum of three forward speeds and one reverse speed shall be provided.

(c) A diagram of the shifting control pattern shall be located in a position easily visible to the driver.

(d) There shall be a detent on the automatic transmission shift lever to insure that the transmission cannot accidentally move from neutral to a drive gear without driver effort.

(e) Buses which are not equipped with a park position on the shift control selector for automatic transmissions shall be equipped with a heavy duty parking brake.

(f) The transmission shift control lever/mechanism shall be mounted to the right of the steering column.

13:20-49B.28 Turning radius

(a) A chassis with a wheel base of 264 inches or less shall have a right and left turning radius of not more than 42½ feet, curb to curb measurement.

(b) A chassis with a wheelbase of 265 inches or more shall have a right and left turning radius of not more than 44½ feet, curb to curb measurement.

13:20-49B.29 Undercoating

The undersides of steel or metallic-constructed front fenders shall be coated with rust-proofing compound.

13:20-49B.30 Weight distribution

The weight distribution of a fully loaded bus on a level surface shall not exceed the manufacturer's front and rear GAWR.

SUBCHAPTER 49C. BODY STANDARDS FOR BUSES USED FOR PUPIL TRANSPORTATION MANUFACTURED JUNE 1993 THROUGH DECEMBER 2005

13:20-49C.1 Aisle

(a) The minimum clearance of all aisles shall be 12 inches.

1. The aisle leading to an exit door or a rear emergency exit shall be a minimum width of 12 inches.

2. The aisle leading from the center aisle to a side emergency door shall be a minimum width of 24 inches.

3. The aisle leading to an emergency or lift door from a wheelchair position shall be a minimum width of 30 inches.

(b) Aisles shall be unobstructed at all times by any type barrier, seat, or other object.

(c) The seat backs shall be slanted sufficiently to give aisle clearance of 15 inches at the tops of seat backs.

(d) This rule also applies to buses under the jurisdiction of the Motor Vehicle Commission's Commercial Bus Inspection and Investigation Unit, approved for school use, contracted by a local board of education for transportation to and from school.

Amended by R.2006 d.249, effective July 3, 2006.
See: 38 N.J.R. 386(b), 38 N.J.R. 2835(a).
Rewrote (d).

13:20-49C.2 Back-up warning alarm

An automatic audible alarm shall be installed behind the rear axle of the bus and shall comply with current applicable SAE standards for rubber tired vehicles.

13:20-49C.3 Battery

(a) A battery is to be furnished by the chassis manufacturer.

(b) When the battery is mounted as described in the chassis standards of N.J.A.C. 13:20-49B.8(a), the body manufacturer shall securely attach battery on a slide-out or swing-out tray in a closed, vented compartment in the body skirt, so that the battery may be exposed to the outside for convenient servicing. The battery compartment door or cover shall be hinged at the front or top and secured by an adequate and conveniently operated fastening device.

13:20-49C.4 Bumpers

(a) The front bumper shall be provided by the chassis manufacturer.

1. The bumper on a Type D bus may be furnished by the body or chassis manufacturer.

2. A front safety shield attached directly under the bus front bumper may be used. It shall be constructed of rigid plastic, fiberglass, steel or equivalent material designed to withstand abnormal vibration, severe atmosphere conditions and removable to permit towing. The shield's overall width shall not exceed maximum front tire width, when bus wheels are in a straight ahead position and shall terminate 12 to 14 inches above the road surface. Front surface may be either solid, perforated or louvered and shall be black.

(b) A rear bumper shall be provided which is constructed of pressed steel channel or equivalent material at least 3/16 inch thick.

1. The bumper on a Type A bus shall be a minimum of eight inches high.

2. The bumper on Types B, C, and D buses shall be a minimum of 9½ inches high.

(c) The bumpers shall be of sufficient strength to permit pushing by another vehicle without permanent distortion.

(d) The rear bumper shall be wrapped around the back corners of the bus. It shall extend forward at least 12 inches, measured from the rear-most point of the body at the floor line.

(e) The rear bumper shall be attached to the chassis frame in such a manner that it may be easily removed. It shall be braced to withstand rear or side impact, and shall be attached to discourage hitching of rides.

(f) The rear bumper shall extend at least one inch beyond the rear-most part of the body surface measured at the floor line.

1. A Type A bus may conform to chassis manufacturer's specifications.

(g) Energy-absorbing bumpers which conform to current applicable FMVSS test requirements may be used. Its design shall incorporate a self-restoring energy absorbing bumper system so attached to discourage the hitching of rides and of sufficient strength to:

1. Permit pushing by another vehicle without permanent distortion to the bumper, chassis, or body; and

2. Withstand repeated impacts without damage to the bumper, chassis, or body according to current NSFSB.

13:20-49C.5 Capacity

(a) The number of pupils assigned to a seat may not exceed the gross seating length in inches divided by 15. Application of the foregoing formula shall not result in the approval of a school vehicle with a seating capacity in excess of 54.

1. Vehicles manufactured as 58 passenger elementary school vehicles owned by a district board of education or contractor prior to December 18, 1989, may be utilized until retirement.

(b) There shall be no standees.

(c) This section shall not apply to a bus while being used as a common carrier on a preset franchised route and schedule.

Repeal and New Rule, R.1989 d.610, effective December 18, 1989.
See: 21 N.J.R. 2724(a), 21 N.J.R. 3939(a).
Amended by R.1994 d.404, effective August 1, 1994.
See: 26 N.J.R. 1997(a), 26 N.J.R. 3164(a).

13:20-49C.6 Color

(a) The school bus body shall be painted National School Bus Yellow.

(b) The body exterior paint trim, bumper, lamp hoods, emergency door arrow, exterior mirror assembly and support brackets shall be black.

1. The words "EMERGENCY DOOR" shall be applied both inside and outside the door in red lettering at least two inches high and at least 3/16 inch wide.

(c) Reflective material may be applied to the bus. The material used shall be automotive engineering grade or better, meeting initial reflectance values as specified by NSFSB and retaining at least 50 percent of those values for a minimum of six years. Reflective materials and markings, if used, may include any or all of the following:

1. The bumpers may be marked diagonally 45 degrees down to the centerline of the pavement with stripes evenly spaced of National School Bus Yellow or non-contrasting reflective material two inches wide.

2. The rear of bus body may be marked with a strip of reflective National School Bus Yellow material no greater than two inches in width to be applied to the back of the bus, extending from the left lower corner of the "SCHOOL BUS" lettering, across to left side of the bus, then vertically down to the top of the bumper, across the bus on a line immediately above the bumper to the right side, then vertically up to a point even with the strip placement on the left side, and concluding with a horizontal strip terminating at the right lower corner of the "SCHOOL BUS" lettering.

3. The sides of the bus body may be marked with reflective National School Bus Yellow material at least six inches but not more than 12 inches in width, extending the length of the bus body and located (vertically) as close as practicable to the beltline.

4. The "SCHOOL BUS" signs may be marked with reflective National School Bus Yellow material comprising background for lettering of the front and/or rear "SCHOOL BUS" signs.

13:20-49C.7 Communications

(a) School buses may be equipped with an electronic voice communication system, preferably not citizen band equipment.

(b) A public address sound system with interior speakers and exterior horn may be installed.

13:20-49C.8 Construction

(a) The bus construction shall be of prime commercial quality steel or other metal or material with strength at least equivalent to all-steel as certified by the body manufacturer.

(b) The construction shall provide a reasonably dustproof and water-tight unit and the exterior shall be designed to discourage the hitching of rides.

(c) The bus body joints shall conform to current applicable FMVSS. This does not include the body joints created when body components are attached to components furnished by the chassis manufacturer.

(d) Restraining barriers shall conform to current applicable FMVSS requirements for buses with a GVWR of more than 10,000 pounds.

(e) Buses may be equipped with steel side panel skirts between the front and rear axles of the bus and shall extend to the bottom-most evaluation of any chassis component located within the center section of a wheel base measurement apportioned into three equal sections. The side panel skirt shall terminate no less than 12 inches above a level road surface. Beyond the rear axle, the bottom of the side panel skirts shall taper upward to the bottom-most part of the rear bumper.

(f) Buses shall not be equipped with stanchions, an interior luggage rack, a roof luggage rack, or luggage access ladder.

1. This rule also applies to buses under the jurisdiction of the Motor Vehicle Commission's Commercial Bus Inspection and Investigation Unit, approved for school use, contracted by a local board of education for transportation to and from school.

Amended by R.2006 d.249, effective July 3, 2006.
See: 38 N.J.R. 386(b), 38 N.J.R. 2835(a).
Rewrote (f)1.

13:20-49C.9 Defrosters

(a) Defrosting and defogging equipment shall direct a sufficient flow of heated air onto the windshield, the window to the left of the driver and the glass in the viewing area directly to the right of the driver to eliminate frost, fog and snow. The defroster unit shall have a separate blower motor in addition to the heater motors.

1. A Type A bus shall be equipped with defogging and defrosting equipment which will direct a sufficient flow of heated air onto the windshield to eliminate frost, fog, and snow.

(b) The defrosting system shall conform to SAE standards.

(c) The defroster and defogging system shall be capable of furnishing heated outside ambient air except that part of the system furnishing additional air to the windshield, entrance door, and step-well which may be of the recirculating air type.

(d) Auxiliary fans are not to be considered as a defrosting and defogging system.

(e) Portable heaters shall not be used.

13:20-49C.10 Doors, entrance

(a) The entrance door shall be under control of driver, and designed to afford easy release and prevent accidental opening. When a hand lever is used, no part shall come together so as to shear or crush fingers.

(b) The entrance door shall be located on the right side of the bus opposite the driver and within direct view of the driver.

(c) The entrance door on Types B, C, and D buses shall have a minimum horizontal opening of 24 inches and a minimum vertical opening of 68 inches. The entrance door on a Type A bus shall have a minimum opening of 1,200 square inches.

(d) The entrance door shall be of split-type, sedan-type, or jack-knife type. A split-type door includes any sectioned door which divides and opens inward or outward. If one section of split-type door opens inward and the other opens outward, the front section shall open outward.

(e) Door panels shall be of approved safety glass. The bottom of each lower glass panel shall not be more than 10 inches from the top surface of the bottom step. The top of the upper glass panel shall not be more than six inches from top of door.

1. A Type A bus which is not equipped with a split-type door shall have an upper panel window of safety glass with an area of at least 350 square inches.

(f) The vertical closing edges on a split-type door shall be equipped with a flexible material to protect children's fingers.

1. A Type A bus which is not equipped with a split-type door may conform to the chassis manufacturer's specifications.

(g) There shall be no entrance door to the left of the driver on Types C and D buses. Type A and B buses may conform to chassis manufacturer's specifications.

(h) All doors shall be equipped with a padding at the top edge of each door opening. Pad shall be at least three inches wide and one inch thick and extend the full width of the door opening.

(i) When a bus is equipped with air doors or other air operated assemblies, excluding windshield wipers, an additional air tank is needed for the operation of those assemblies.

13:20-49C.11 Doors, emergency

(a) The emergency door shall be hinged on the right side if in rear end of the bus and on the front side if on either side of the bus. All emergency doors shall open outward and be equipped with a device to hold the door open during emergencies and school bus evacuation drills.

1. A Type A bus equipped with double emergency doors shall be hinged on the outside edge and have a three point fastening device.

(b) The emergency door shall be labeled inside and outside to indicate how it is to be opened.

(c) The upper portion of emergency door shall be equipped with approved safety glazing, exposed area of which shall be not less than 400 square inches.

1. A rear view wide angle lens may be attached to one rear bus window. The lens shall not cover more than one third of the glass area.

(d) The lower portion of the rear emergency door on Types B, C, and D buses shall be equipped with a minimum of 350 square inches of approved safety glazing.

(e) There shall be no steps leading to emergency door.

(f) The words "EMERGENCY DOOR" shall be applied to the emergency door both inside and outside in red letters at least two inches high and 3/16 inch wide, shall be placed at top of or directly above the emergency door or on the door in the metal panel above the top glass.

(g) The emergency door shall be designed to be opened from the inside and outside of the bus and shall be equipped with a quick release fastening device designed to prevent accidental release. Control of the fastening device from the driver's seat shall not be permitted.

(h) The emergency door and the rear emergency window fastening device shall be equipped with a buzzer located in the driver's compartment which will indicate to the driver that the slide bar has moved and the emergency door is about to open. The switch which operates the buzzer shall be enclosed in a metal case and the wires leading from the switch shall be concealed in the bus body.

(i) The emergency door may be equipped with a locking system which incorporates an interlocking electrical circuit that will prevent the bus from being started while the emergency door is locked.

(j) The emergency door windows shall not be covered by any metal bars or screening.

(k) The emergency door shall be equipped with padding at least three inches wide and one inch thick, at top edge of each door opening, which shall extend the full width of the door opening.

(*l*) There shall be no obstruction higher than ¼ inch high across the bottom of any emergency door opening.

13:20-49C.12 Emergency exits

(a) Buses shall be equipped with emergency push-out split sash side windows which are vertically hinged on the forward side of the bus and roof safety hatches as follows:

1. One emergency push-out exit window per side.

i. Push-out windows shall not be placed directly opposite each other.

ii. Each emergency push-out side exit window shall be equipped with a warning buzzer, located in the driver's compartment to alert the driver when the latch for the emergency push-out window is released.

2. A roof safety hatch shall be installed in the forward half of the bus roof.

i. The roof safety hatch shall be constructed of metal, fiberglass or equivalent and equipped with an interior and exterior latch release. Each roof safety hatch shall provide a minimum opening of 20 inches by 20 inches.

ii. Each roof safety hatch shall be equipped with a warning buzzer, located in the driver's compartment to alert the driver when the latch for the roof safety hatch is released.

(b) Additional push-out windows may be used.

(c) Buses shall be equipped with emergency exits in accordance with P.L. 1992, c.93.

13:20-49C.13 Emergency equipment

(a) A pry bar at least 24 inches in length shall be securely mounted in the bus in a location readily accessible to the driver.

(b) Each school bus shall contain at least three reflectorized triangle road warning devices in compliance with FMVSS and be mounted in an accessible place in the driver's compartment.

1. The mounting location in a Type A bus is optional.

(c) Buses may be equipped with an identified body fluid clean-up kit that is removable, moisture proof and mounted in an accessible place in driver's compartment.

13:20-49C.14 Fire extinguishers

(a) The bus shall be equipped with at least one pressurized, dry chemical type fire extinguisher, complete with hose, mounted in a bracket located in the driver's compartment and readily accessible to the driver and passengers. A pressure gauge shall be mounted on the extinguisher which can be easily read without removing the extinguisher from its mounted position.

(b) The fire extinguisher shall be approved by the Underwriters Laboratories, Inc. with a total rating of 2 A-10 BC or greater. The operating mechanism shall be sealed with a type of seal which will not interfere with the use of the fire extinguisher.

13:20-49C.15 First aid kit

(a) A removable first aid kit shall be provided. It should be moisture and dust proof and be mounted in an accessible place within the driver's compartment. When the first aid kit is stored in a storage compartment, the location of the kit shall be identified by the words "First Aid" in red letters two inches high and $^{3}/_{16}$ inch wide.

(b) The kit shall contain, but is not limited to, the following items:

1. Two, one inch x 2½ yards adhesive tape rolls;
2. Twenty-four sterile gauze pads three inches x three inches;
3. One hundred ¾ inch x three inches adhesive bandages;
4. Eight, two inch bandage compresses;
5. Ten, three inch bandage compresses;
6. Two, two inch x six yards sterile gauze roller bandages;
7. Two nonsterile triangular bandages approximately 40 inches x 54 inches with two safety pins;
8. Three sterile gauze pads 36 inches x 36 inches;
9. Three sterile eye pads;
10. One pair latex gloves;
11. One pair rounded end scissors;
12. One mouth-to-mouth airway;
13. One sharpened pencil; and
14. One small writing pad.

13:20-49C.16 Floor

(a) The floor in the underseat area, including tops of the wheelhousing, drivers compartment, and the toe board, shall be covered with rubber floor covering or equivalent having minimum overall thickness of .125 inch.

1. The toe board floor covering on Types A and B buses may be the chassis manufacturer's standard.

(b) The floor covering in the aisle shall be rubber or equivalent, wear-resistant, and ribbed. Minimum overall thickness shall be .187 inch measured from the tops of the ribs.

(c) The floor covering must be permanently bonded to the floor and shall not crack when subjected to sudden changes in temperature. The bonding or adhesive material shall be waterproof and shall be the type recommended by the manufacturer of floor covering material. All seams must be sealed with waterproof sealer.

(d) A secured insulated screw-down plate to access the fuel tank sending unit shall be provided.

13:20-49C.17 Heaters

(a) Heaters shall be of hot water type and/or combustion type.

(b) If only one heater is used, it shall be of fresh air or combination fresh air and recirculating type.

(c) If more than one heater is used, additional heaters may be of the recirculating air type.

(d) The heating system shall be capable of maintaining a temperature of not less than 40 degrees Fahrenheit throughout the bus at average minimum January temperature as established by the U.S. Department of Commerce, Weather Bureau, for the area in which the bus is to be operated.

(e) All heaters installed by the body manufacturers shall bear a name plate that indicates the heater rating is in accordance with SBMI standards. The plate shall be affixed by the heater manufacturer which will constitute certification that the heater performance is as shown on the plate.

(f) Heater hoses shall be adequately supported to guard against excessive wear due to vibration. The hoses shall not dangle or rub against the chassis or sharp edges and shall not interfere with or restrict the operation of any engine function. Heater hose shall conform to SAE standards. Heater lines on the interior of the bus shall be shielded to prevent scalding of the driver or passengers.

(g) Each hot water heater system installed by the body manufacturer shall include one shut-off valve in the pressure line and one shut-off valve in the return line with both valves at or near the engine in an accessible location. There shall

also be a water flow regulating valve installed in the pressure line for convenient operation by the driver while seated.

1. The hot water heater system in a Type A bus may conform to the chassis manufacturer's standard.

(h) Combustion type heaters shall comply with current applicable FMCSR.

(i) Accessible bleeder valves shall be installed in an appropriate place in the return lines of body company-installed heaters to remove air from the heater lines.

(j) Access panels shall be provided to make heater motors, cores, and fans readily accessible for service. Outside access panel may be provided for the driver's heater.

(k) A rear engine bus shall be equipped with a hot water heater booster pump.

13:20-49C.18 Identification

(a) The words "SCHOOL BUS" shall be applied to the bus body in black letters at least eight inches high on both the front and rear of the bus between the warning lamp signals or on signs attached thereto. Lettering shall be placed as high as possible without impairment of its visibility. Lettering shall conform to Series "B" of standard alphabets for highway signs.

1. An illuminated front and rear destination sign with "SCHOOL BUS" in eight inch black letters on background of National School Bus Yellow may be used.

(b) When attached signs are used, they shall comply with the following:

1. The sign on the front of the bus shall have the words "SCHOOL BUS" printed in black letters not less than eight inches on a background of National School Bus Yellow;

2. The sign on the rear of the bus shall be at least 10 square feet in size and shall be painted National School Bus Yellow and have the words "SCHOOL BUS" printed in black letters not less than eight inches high; and

3. Attached signs shall be removed or covered whenever the bus is not being used for to and from school transportation.

(c) The standards in (a) and (b) above also apply to buses under the jurisdiction of the Motor Vehicle Commission's Commercial Bus Inspection and Investigation Unit, approved for school use, contracted by a local board of education for transportation to and from school.

(d) There shall be no lettering on the front or rear of the bus unless specified in this subchapter.

(e) Only signs and lettering limited to the name of owner or operator and any marking necessary for identification shall appear on the sides of the bus.

1. The owning or operating organization shall be conspicuously identified in letters at least three inches high, located on each longitudinal side of the exterior of the bus. The identification shall be below the window line, completely horizontal and shall be black or National School Bus Yellow.

2. Identification letters or numbers, up to a maximum height of six inches, shall be in prominent locations on the front and rear of the bus below the window line. The color of the letters or numbers shall be either white, black or National School Bus Yellow.

(f) No advertisement of any kind shall be exhibited either on the interior or exterior of the bus, except for the manufacturer's and vendor's trade names which may be exhibited on the bus.

Amended by R.2006 d.249, effective July 3, 2006.
See: 38 N.J.R. 386(b), 38 N.J.R. 2835(a).
Rewrote (c).

13:20-49C.19 Inside height

(a) The inside body height shall be 72 inches or more, measured from the ceiling to the floor metal, at any point on longitudinal center line from front vertical bow to rear vertical bow.

1. A Type A bus shall have a minimum of 62 inches inside body height.

13:20-49C.20 Insulation

(a) The ceiling and walls shall be insulated with adequate material to deaden sound and to reduce vibration to a minimum. If thermal insulation is specified, it shall be of fire-resistant material approved by the Underwriters Laboratories, Inc.

(b) Floor insulation may be used and shall be either five ply 19/32 inch thick plywood, or a material of equal or greater strength with an insulation R value and shall be equal or exceed properties of exterior-type softwood plywood, C-D Grade as specified in standards issued by U.S. Department of Commerce. When plywood is used, all exposed edges shall be sealed.

1. Type A bus shall be insulated with a minimum of one-half inch exterior grade plywood securely fastened to the steel floor of the bus in the passenger compartment.

13:20-49C.21 Interior

(a) The interior of the bus shall be free of all unnecessary projections, such as luggage racks, which may cause injury. This standard requires inner lining on ceilings and walls. If ceiling is constructed with lapped joints, the forward panel shall be lapped by the rear panel and the exposed edges shall be beaded, hemmed, flanged, or otherwise treated to minimize sharp edges.

(b) The driver's area forward of the foremost padded barriers shall permit the mounting of required safety equipment and vehicle operation equipment.

(c) Every school bus shall be constructed so that the noise level taken at the ear of the occupant nearest to the primary vehicle noise source shall not exceed 85 dBA when tested according to NSFSB.

13:20-49C.22 Lamps and signals

(a) The lamps on the exterior of the bus shall conform to current applicable FMVSS.

1. Each clearance, marker, or identification lamp shall be of the two bulb design and shall automatically be activated, whenever the headlights or parking lamps are activated, in a steady burning state.

2. Two parking lamps shall designate the front of the bus.

3. Two backup lamps shall be installed on the rear of Types B, C, and D buses. These lamps shall be illuminated when either the shift control lever for the transmission is placed into reverse gear or the rear emergency door is unlatched.

4. An armored marker-type amber lamp connected to the turn signals shall be installed on each side of the bus body immediately behind the entrance door on the right and symmetrically opposite on the left side of all Type C and D buses.

(b) Interior lamps shall be provided which adequately illuminate aisle and stepwell. Stepwell light shall be illuminated by the service door operated switch, which will illuminate only when headlights and clearance lights are on and the service door is open.

(c) Body instrument panel lights shall be controlled by an independent rheostat switch.

(d) A telltale light, plainly visible to the driver, shall be installed to give a positive indication of the operation of the stop lights.

(e) Alternately flashing signal lamps shall be provided as follows:

1. Red signal lamps are alternately flashing lamps mounted horizontally both front and rear, intended to identify a vehicle as a school bus and to inform other users of the highway that the bus is stopped to take on or discharge school children.

i. Buses shall be equipped with two front and two rear red lamps located approximately six inches below the top of the bus, as near the sides as is possible, and equidistant from the center.

2. Amber signal lamps are alternately flashing lamps mounted horizontally both front and rear, intended to identify a vehicle as a school bus and to inform other users of the highway that the bus is about to stop on the highway to take on or discharge school children.

i. In addition to the four red lamps described in (e)1 above, four amber lamps shall be installed with one amber lamp located near each red signal lamp, at same level, but closer to vertical centerline of bus.

ii. The amber lamps shall be activated, approximately 300 feet prior to each school bus stop, either by a hand button that is identified and easily accessible to the belted bus driver or by a foot switch located on the floor board directly in front of where a clutch pedal normally would be located.

3. The system of red and amber signal lamps shall be wired so that amber lamps are energized manually, and red lamps are automatically energized (with amber lamps being automatically de-energized) when stop signal arm is extended or when bus service door is opened.

4. All flashers for alternately flashing red and amber signal lamps shall be enclosed in the body in a readily accessible location.

5. Each school bus shall be equipped with a system which monitors the front and rear alternately flashing signal lamps and the monitor shall be mounted in full view of the driver. If the full circuit current passes through the monitor, each circuit shall be protected by a fuse or circuit breaker.

6. The area around the lens and extending outward approximately three inches from each alternately flashing signal lamp shall be black in color. In those installations where there is no flat vertical portion of the body immediately surrounding the entire lens of lamp, a circular or square band approximately three inches wide, immediately below and to both sides of the lens, shall be black in color on the body or roof area against which the signal lamp is seen from a distance of 500 feet along axis of vehicle.

7. Visors or hoods, black in color, with a minimum depth of four inches shall be provided.

8. If strobe alternately flashing signal lamps are utilized, the front and rear signal lamps shall be equipped with eight seven inch sealed beam electronic strobe lamps, four red and four amber, working in an automatic integrated system. The exterior surface of lens shall be smooth and meet SAE color requirements. Strobe alternately flashing signal lamps are only permitted on Type C and D buses.

i. The solid-state strobe power supply shall provide the electrical power to energize the sealed beam flash tubes. The power supply shall energize the lamps at a combined alternating flash rate of 120-128 flashes per

minute. The power supply shall be fully enclosed in a metal container, with a minimum metal wall thickness of .060 inches, and mounted within the front or rear bulkheads.

(f) The requirements in (e) above also apply to buses under the jurisdiction of the Motor Vehicle Commission's Commercial Bus Inspection and Investigation Unit, approved for school use, contracted by a local board of education for transportation to and from school.

(g) The bus body shall be equipped with rear turn signal lamps that are at least seven inches in diameter or if a shape other than round, a minimum 38 square inches of illuminated area and meet SAE standards. These signals must be connected to the chassis hazard wiring switch to cause simultaneous flashing of turn signal lamps when needed as vehicular traffic hazard warning. Turn signal lamps are to be placed as wide apart as practical and their centerline shall be approximately eight inches below the rear window.

1. On Type A buses, the lamps must be at least 21 square inches in lens area.

(h) Buses shall be equipped with four combination red stop/tail lamps as follows:

1. Two combination lamps with a minimum diameter of seven inches, or if a shape other than round, a minimum 38 square inches of illuminated area shall be mounted on the rear of the bus just inside the turn signals.

2. Two combination lamps with a minimum diameter of four inches, or if a shape other than round, a minimum 12 square inches of illuminated area shall be placed on the rear of the body between the beltline and the floor line. Rear license plate lamp may be combined with one lower tail lamp. Stop lamps shall be activated by the service brakes and shall emit a steady light when illuminated.

3. Type A buses may conform to the chassis manufacturer's standard.

Amended by R.2006 d.249, effective July 3, 2006.
See: 38 N.J.R. 386(b), 38 N.J.R. 2835(a).
Rewrote (f).

13:20-49C.23 Metal treatment

(a) All metal used in construction of bus body shall be zinc coated or aluminum coated or treated by equivalent process before bus is constructed. Included are such items as structural members, inside and outside panels, door panels, and floor sills; excluded are such items as door handles, grab handles, interior decorative parts, and other interior plated parts.

(b) All metal parts that will be painted shall be chemically cleaned, etched, zinc-phosphate coated, and zinc-chromate or epoxy primed or conditioned by equivalent process.

(c) In providing for these requirements, particular attention shall be given lapped surfaces, welded connections of structural members, cut edges, punched or drilled hole areas in sheet metal, closed or box sections, unvented or undrained areas, and surfaces subjected to abrasion during vehicle operation.

(d) As evidence that the above requirements have been met, samples of materials and sections used in the construction of the bus body shall not lose more than 10 percent of material by weight when subjected to 1,000 hour salt spray test as provided for in the NSFSB.

13:20-49C.24 Mirrors

(a) An interior mirror shall be provided which is either clear view laminated glass or clear view glass bonded to a backing which retains the glass in the event of breakage. Mirror shall be a minimum of six inches by 30 inches. The mirror shall have rounded corners and protected edges.

1. On a Type A bus, the mirror shall be a minimum of six inches by 16 inches.

(b) Buses shall be equipped with a system of exterior mirrors which conform to current applicable FMVSS as follows:

1. A rear vision mirror system which shall be capable of providing a view along the left and right sides of the vehicle which will provide the driver with a view of the rear tires at ground level, a minimum distance of 200 feet to the rear of the bus and at least 12 feet perpendicular to the side of the bus at the rear axle line; and

2. A crossview mirror system which shall provide the driver with indirect vision of an area at ground level from the front bumper forward and the entire width of the bus to a point where the driver can see by direct vision. The crossview system shall also provide the driver with indirect vision of the area at ground level around the left and right front corners of the bus to include the tires and entrance door on all types of buses to a point where it overlaps with the rear vision mirror system.

i. No portion of the crossview mirror assembly shall project more than six inches forward or laterally from the outer-most limits of the vehicle at point of installation.

ii. No portion of the crossview mirror assembly shall unduly obstruct the light emitted from any required lamp or the driver's view of vehicular traffic.

3. Stick-on convex mirrors shall not be attached to any mirror surface.

13:20-49C.25 Mounting

(a) The chassis frame shall support the rear body cross member. The bus body shall be attached to the chassis frame

at each main floor sill, except where chassis components interfere, in such manner as to prevent shifting or separation of body from chassis under severe operation conditions.

1. The distance between the fasteners which secure the body to the chassis shall not exceed 42 inches.

2. The fasteners shall be located directly opposite each other along the longitudinal length of the chassis frame.

(b) Insulation material shall be placed at all contact points between the body and the chassis frame on body on chassis type buses, and shall be attached to the chassis frame or body so that it will not move under severe operating conditions.

13:20-49C.26 Overall length

Overall length of bus shall not exceed 40 feet.

13:20-49C.27 Overall width

Overall width of bus shall not exceed 96 inches excluding accessories.

13:20-49C.28 Reflectors

(a) Reflectors are required on buses which comply with current applicable FMVSS as follows:

1. On the rear: Two red reflectors, equally spaced as far from the center as practical and at the same height.

2. On each side: Two reflectors on each side, one amber, at or near the front and one red at or near the rear.

3. One amber reflector on each side of the bus body as near the center as practical shall be provided on buses 30 feet or more in length.

13:20-49C.29 Rub rails

(a) There shall be one rub rail located on each side of bus approximately at seat level which shall extend from rear side of entrance door completely around bus body (except emergency door) to point of curvature near outside cowl on left side.

(b) There shall be one rub rail located approximately at floor line which shall cover same longitudinal area as upper rub rail, except at wheelhousing, and shall extend only to radii of right and left rear corners.

(c) Each rub rail shall be attached at each body post, and all other upright structural members.

(d) Each rub rail, in their finished form, shall be four inches or more in width. They shall be of 16 gauge steel or suitable material of equivalent strength, and shall be constructed in corrugated or ribbed fashion.

(e) Both rub rails shall be applied outside body or outside body posts. Pressed-in or snap-on rub rails do not satisfy this requirement.

(f) On Type A and B buses with a chassis manufacturer's body, or Type C and D buses with a rear luggage or a rear engine compartment, rub rails are not required to extend around rear corners.

13:20-49C.30 Sanders and traction device

(a) When used, sanders shall:

1. Be of hopper cartridge-valve type;

2. Have a metal hopper with all interior surfaces treated to prevent condensation of moisture;

3. Be of at least 100 pound (grit) capacity;

4. Have a cover on the filler opening of the hopper, which screws into place, sealing unit airtight;

5. Have discharge tubes extending to front of each rear wheel under fender;

6. Have no-clogging discharge tubes with slush-proof, non-freezing rubber nozzles;

7. Be operated by an electric switch with a telltale pilot light mounted on the instrument panel;

8. Be exclusively driver-controlled; and

9. Have a gauge to indicate that hoppers need refilling when they are down to one-quarter full.

(b) Automatic traction chains may be used.

13:20-49C.31 Seat belt for driver and students

(a) A type 2 lap belt/shoulder seat belt shall be provided for the driver. The assembly shall be equipped with an emergency locking retractor for the continuous belt system. The lap portion of the belt shall be guided or anchored where practical to prevent the driver from sliding sideways under it.

(b) The seat belt shall have a button type latch and the floor anchored belt section shall be booted to keep the buckle within driver's reach.

(c) Buses with a chassis manufacturer date of October, 1992 or thereafter shall be equipped with seat belts and 28 inch high back seats in accordance with P.L. 1992, c.92.

(d) Buses equipped with seat belts shall also contain a belt cutter for use in an emergency. The belt cutter shall be designed to prevent injury during use and secured in a safe location.

Amended by R.1994 d.404, effective August 1, 1994.
See: 26 N.J.R. 1997(a), 26 N.J.R. 3164(a).

13:20-49C.32 Seats and crash barriers

(a) All seats shall have minimum depth of 15 inches.

(b) Seat backs shall be a minimum of 28 inches high and a minimum 24 inches above the seating reference point.

1. This requirement shall apply only to school buses and equipment for which a bid is submitted or an order for purchase placed on or after September 8, 1992.

(c) Seat, seat back cushion and crash barrier shall be covered with a material having 42-ounce finished weight, 54 inches width, and finished vinyl coating of 1.06 broken twill, or other material with equal tensile strength, tear strength, seam strength, adhesion strength, resistance to abrasion, resistance to cold, and flex separation, and meets the criteria contained in the NSFSB Fire Block Test for school bus seat upholstery.

1. Damaged or vandalized covers of seat cushions, seat backs, and crash barriers equipped with flame-retardant materials shall be repaired in a manner to maintain the original flame-retardant protection.

(d) All seats shall be forward facing.

(e) Each seat leg shall be secured to the floor by a minimum of two bolts, washers, and nuts.

(f) All seat frames attached to the seat rail shall be fastened with two bolts, washers and nuts or flange-headed nuts.

(g) The driver's seat shall be of the highback type with a minimum seat back adjustment of 15 degrees and with a head restraint to accommodate a 95 percentile adult male. The driver's seat shall be secured with nuts, bolts, and washers or flange-headed nuts.

1. The space between the back of the driver's seat, in the rearmost position, and the front surface of the restraining barrier located directly behind the driver shall comply with FMVSS for barrier deflection.

13:20–49C.33 Spray suppressant and mud flaps

Spray suppressants or mud flaps are required when an angle found by a level road surface and a line projected from the point of contact of the rearmost tire with the ground and the bottom edge of the rear bumper exceeds an angle of 22½ degrees.

13:20–49C.34 Steps

(a) First step at the entrance door shall not be less than 10 inches and not more than 14 inches from the ground, based on standard chassis specifications.

1. Type D buses shall have the first step at the entrance door 12 to 16 inches from the ground.

(b) Step risers shall not exceed a height of 10 inches. When plywood is used on the steel floor or step, the riser height may be increased by thickness of the plywood used.

(c) Steps shall be enclosed to prevent accumulation of ice and snow.

(d) Steps shall not protrude beyond side body line.

(e) A grab handle not less than 20 inches in length shall be provided in unobstructed location inside the doorway.

13:20–49C.35 Step treads

(a) All steps, including floor line platform area, shall be covered with 3/16 inch rubber floor covering or other materials equal in wear resistance and abrasion resistance to top grade rubber.

(b) The rubber step treads shall be permanently bonded to the step well metal, minimum 24 gauge cold roll steel, and the ribbed rubber grooved design shall run at 90–degree angles to long dimension of the step tread.

(c) Three-sixteenth inch ribbed step tread shall have a 1½ inch white nosing integral piece without any joint.

(d) The rubber portion of step treads shall have the following characteristics:

1. Special compounding for good abrasion resistance and high coefficient of friction;

2. Flexibility so that it can be bent around a one-half inch mandrel both at 130 degrees Fahrenheit and 20 degrees Fahrenheit without breaking, cracking, or crazing; and

3. Show a durometer hardness of 85 to 95.

13:20–49C.36 Stirrup steps

There shall be at least one folding stirrup step or recessed foothold and suitably located handles on each side of the front of the bus body for easy accessibility for cleaning the windshield and lamps except when windshield and lamps are easily accessible from the ground. A step, in lieu of the stirrup steps, is permitted in or on the front bumper.

13:20–49C.37 Stop signal arm

A stop signal arm shall be provided on the left side of the body which meets the applicable requirements of FMVSS. The stop arm shall be an octagonal shape with white letters and border on a red background. The flashing lamps in stop arm shall be connected to the alternately red flashing signal lamp circuits. Vacuum, electric or air operation of the stop signal arm is optional.

13:20–49C.38 Storage compartment

If tools, tire chains and/or tow chains are carried on the bus, a container of adequate strength and capacity may be provided. Such storage container may be located either inside or outside the passenger compartment but, if inside, it shall have a cover (seat cushion may not serve as this purpose) capable of being securely latched and be fastened to the floor convenient to either the entrance or emergency door.

13:20–49C.39 Sun shield

(a) Interior adjustable transparent sun shield not less than six inches by 30 inches with a finished edge shall be installed in a position convenient for use by driver.

1. A Type A bus may be equipped with a sun shield not less than six inches by 16 inches.

13:20–49C.40 Tailpipe

(a) The tailpipe diameter from muffler to the end shall comply with the chassis manufacturer's standard and shall be constructed of a corrosion resistant tubing material at least equal in strength and durability to 16–gauge steel tubing.

(b) The tailpipe shall terminate to the rear of all doors and windows designed to be opened for ventilation.

(c) The tailpipe shall not terminate immediately below an emergency exit, fuel tank, or fuel tank fill pipe.

(d) The tailpipe of a bus powered by a gasoline engine shall extend to the rear bumper or to the left or right perimeter sides of the bus body and discharge to the atmosphere either:

1. At or within six inches forward of the rearmost part of the bus on the left or right side; or

2. Beyond the rear bus bumper up to a maximum of two inches.

(e) The tailpipe of a bus using fuel other than gasoline shall extend to the rear bumper or to the left or right perimeter sides of the bus body and discharge to the atmosphere either:

1. At or within 15 inches forward of the rearmost part of the bus on the left or right side; or

2. At or beyond rear bus bumper up to a maximum of two inches.

(f) Tailpipe(s) which terminate at either the left or right side of the bus shall extend to but not beyond the perimeter of the bus body side.

13:20–49C.41 Tow eyes or hooks

Tow eyes or hooks may be furnished on the rear and attached so they do not project beyond the rear bumper. Tow eyes or hooks attached to the chassis frame shall be furnished by either the chassis or body manufacturer. The installation shall be in accordance with the chassis manufacturer's specifications.

13:20–49C.42 Undercoating

(a) The entire underside of the bus body, including floor sections, cross member, and below floor line side panels, shall be coated with rustproofing compound for which the compound manufacturer has issued a notarized certification of compliance to the bus body builder that the compound meets or exceeds all performance and qualitative requirements of applicable Federal specifications.

(b) Undercoating compound shall be applied with suitable airless or conventional spray equipment to recommended film thickness and shall show no evidence of voids in cured film.

13:20–49C.43 Ventilation

(a) The body shall be equipped with a suitable, controlled ventilating system of sufficient capacity to maintain proper quantity of air under operating conditions without opening of windows except in extremely warm weather.

(b) A static-type nonclosable exhaust vent shall be installed in the low-pressure area of roof.

(c) One six inch diameter, two speed auxiliary fan with protective cage shall be installed on each side of the driver position on Types C and D school buses. Each fan shall be controlled by a separate switch.

1. If an auxiliary fan is used on Types A and B buses, it shall be a nominal six inch diameter fan with the blades covered with a protective cage. Each fan shall be controlled by a separate switch.

13:20–49C.44 Walking control arm

(a) A walking control arm may be installed on buses. The construction and design of this equipment shall offer a safe and trouble free operation. The control unit shall be installed on the right side of the front bumper. Equipment shall not obstruct the view of any sign or license plate on the bus. The open crossing gate shall extend forward on the front bumper at least 60 inches up to a maximum of 96 inches.

1. The walking control arm shall be powered by either vacuum, air pressure, or electric. No manual operation of the arm is permitted.

2. The walking control arm shall be activated automatically to the fully extended position when the red school bus warning lights are in operation. It shall be maintained in operating condition at all times or removed.

13:20–49C.45 Wheelhousing

(a) The wheelhousing opening shall allow for easy tire removal and service.

(b) Wheelhousing shall be attached to floor sheets in such a manner to prevent any dust, water, or fumes from entering the body. Wheelhousing shall be constructed of at least 16 gauge steel, or other material of equal strength.

(c) The inside height of the wheelhousing above the floor line shall not exceed 12 inches.

(d) If tire chains are used, the wheelhousing shall provide clearance for installation and use of tire chains on single and dual power driving wheels.

(e) No part of a raised wheelhousing shall extend into the emergency door opening.

13:20–49C.46 Windows and windshield

(a) Each full side window shall provide an unobstructed emergency opening at least nine inches high and 22 inches wide, obtained by lowering window.

1. Push-out type, split-sash windows may be used.

(b) Push out windows shall be provided in accordance with the emergency exit requirements of this subchapter.

(c) Glass in all side and rear windows shall be of AS-2 or better grade. Equivalent plastic AS-4 or better shall only be used in side windows of the bus behind the driver.

(d) The windshield shall have a horizontal gradient tinted band starting slightly above the line of a driver's vision and gradually decreasing in light transmission to 20 percent or less at the top of the windshield. Glass in the windshield shall be of AS-1 grade.

1. Glass in the windshield shall be heat-absorbent, laminated plate. The windshield shall be large enough to permit the driver to see the roadway clearly, shall be slanted to reduce glare, and shall be installed between the front corner posts that are so designed and placed as to afford minimum obstruction to the driver's view of the roadway.

(e) All glass in the windshield, windows and doors shall be approved safety glass, so mounted that a permanent mark is visible, and of sufficient quality to prevent distortion of the view in any direction.

(f) All exposed edges of glass shall be banded.

(g) The windows in the rear of the bus shall be stationary.

(h) Windows shall be free of window guards or bars both inside and outside.

13:20-49C.47 Windshield washers

A windshield washer system shall be provided.

13:20-49C.48 Windshield wipers

(a) A windshield wiping system, two-speed or more, shall be provided.

(b) The wipers shall be operated by one or more air or electric motors of sufficient power to operate wipers. If one motor is used, the wipers shall work in tandem to give full sweep of windshield.

13:20-49C.49 Wiring

(a) All wiring shall conform to current applicable SAE standards.

(b) Wiring shall be arranged in circuits as required with each circuit protected by a fuse or circuit breaker. One extra fuse for each size fuse which is used on the bus shall be conveniently located in the fuse area unless the bus is equipped with circuit breakers. A system of color and number coding shall be used.

1. The following body interconnecting circuits shall be color coded as follows:

Function	Color
Left Rear Directional Light	Yellow
Right Rear Directional Light	Dark Green
Stoplights	Red
Back-Up Lights	Blue
Taillights	Brown
Ground	White
Ignition Feed, Primary Feed	Black

2. The color of the cables shall correspond to current applicable SAE standards.

3. Wiring shall be arranged in at least six regular circuits, as follows:

i. Head, tail, stop (brake), and instrument panel lamps;

ii. Clearance and step-well lamps (step-well lamp shall be actuated when entrance door is opened);

iii. Dome lamp;

iv. Ignition and emergency door signal;

v. Turn signal lamps; and

vi. Alternately flashing signal lamps.

4. Any of above combination circuits may be sub-divided into additional independent circuits.

5. Whenever heaters and defrosters are used, at least one additional circuit shall be installed.

6. Whenever possible, all other electrical functions (such as sanders and electric-type windshield wipers) shall be provided with independent and properly protected circuits.

7. Each body circuit shall be coded by number or letter on a diagram of circuits and shall be attached to the body in readily accessible location.

(c) The entire electrical system of the body shall be designed for the same voltage as the chassis on which the body is mounted.

(d) All wiring shall have an amperage capacity equal to or exceeding the designed load. All wiring splices shall be in an accessible location and noted as splices on the wiring diagram.

(e) An easily readable body wiring diagram shall be furnished with each bus body or affixed in an area convenient to the electrical accessory control panel.

(f) The main power supply to the body shall be attached to a terminal on the chassis.

(g) Wires passing through metal openings shall be protected by a grommet.

(h) Wires not enclosed within the body shall be fastened securely at intervals of not more than 18 inches. All joints shall be soldered or joined by equally effective connectors.

(i) A heavy duty solenoid switch shall be installed in main electric power supply line to body circuits on Types B, C and D buses. The solenoid switch shall be energized by the bus ignition switch. Hazard and directional signal lamp circuits shall operate independently of the ignition switch.

SUBCHAPTER 49D. SPECIALLY EQUIPPED SCHOOL BUS STANDARDS FOR BUSES USED FOR PUPIL TRANSPORTATION MANUFACTURED JUNE 1993 THROUGH DECEMBER 2005

13:20-49D.1 Scope

(a) The following standards address modifications to buses designed for transporting students with special transportation needs. These standards are supplementary to the chassis and body standards established in N.J.A.C. 13:20-49B and 49C.

(b) Specially equipped buses shall meet the body and chassis standards of N.J.A.C. 13:20-49B and 49C prior to any modifications made for mobile seating device positions or special equipment such as a power lift.

(c) A bus used for the transportation of children confined to a wheelchair or other mobile positioning device, or who require life support equipment which prohibits the use of the entrance door, shall be equipped with a power lift.

13:20-49D.2 Aisle

The aisle leading to emergency and power lift doors from a wheelchair position shall be a minimum width of 30 inches.

Amended by R.1994 d.404, effective August 1, 1994.
See: 26 N.J.R. 1997(a), 26 N.J.R. 3164(a).

13:20-49D.3 Communications

Buses shall be equipped with an electronic voice communication system, preferably not citizen band equipment.

13:20-49D.4 Doors

(a) Buses with a power lift shall be equipped with a special entrance door to accommodate the power lift.

1. The door shall be located on the right side of the bus and designed so as not to obstruct the regular entrance door.

2. The opening may extend below the floor through the bottom of the body skirt. If such an opening is used, reinforcements shall be installed at the front and rear of the floor opening to support the floor. This opening shall be the same strength as other floor openings.

3. A drip molding shall be installed above the door opening to divert water from the entrance.

4. The door posts and headers shall be reinforced to provide support and strength equivalent to the sides of the bus.

5. A single door or double doors may be used.

6. The doors shall have fastening devices to hold the doors open.

7. The doors shall be weather sealed.

8. When manually operated dual doors are provided, the rear door shall have at least a one point fastening device to the header. The forward mounted door shall have at least three point fastening devices; one to the header, one to the floor line of the body, and one into the rear door.

i. The door and hinge mechanism strength shall be equivalent or greater than the strength of the emergency exit door.

9. The door material, panels and structural strength shall be equivalent to the entrance and emergency doors. The rub rail extensions, lettering and other exterior features shall match adjacent sections of the body.

10. The door shall have windows set in rubber compatible within one inch of the lower line of the adjacent sash.

11. Doors shall be equipped with a device that will actuate an audible or flashing visible signal, located in the driver's compartment, when the doors are not securely closed and the ignition is in the "on" position.

12. A switch shall be installed so that the lifting mechanism will not operate when the lift platform door is closed.

13. Doors shall be equipped with padding at the top edge of the door opening. The padding shall be at least three inches wide and one inch thick. It shall extend the full width of the door opening.

13:20-49D.5 Glass

(a) Tinted safety glass or tinted plastic may be installed in side windows of the bus to the rear of the driver which complies with applicable Motor Vehicle Commission requirements.

(b) Tinted safety glass shall be AS-3 or better grade.

Amended by R.2006 d.249, effective July 3, 2006.
See: 38 N.J.R. 386(b), 38 N.J.R. 2835(a).
Substituted "Motor Vehicle Commission" for "Division of Motor Vehicle" in (a).

13:20-49D.6 Identification

(a) A bus equipped with a power lift shall display at least one universal handicapped symbol on the back of the bus and below the windowline.

1. The symbol shall not exceed 12 inches in size, be white on a blue background, and be of a high intensity reflectorized material as specified in NSFSB.

13:20-49D.7 Lights

Lights shall be placed inside the bus to sufficiently illuminate the lift door area.

13:20-49D.8 Power Lift

(a) The power lift with a skid resistant platform shall be located on the right side of the bus body and confined within the bus body when not extended.

(b) The lifting mechanism and platform shall be capable of lifting a minimum weight of 800 pounds. The lift platform shall have a minimum of 30 inches clear width unobstructed by the required handrail. The minimum clear length of the platform between the outer edge barrier and inner edge shall be 40 inches.

(c) When the platform is stored, it shall be securely fastened.

(d) Controls shall be provided that enable the operator to activate the lift mechanism from either inside or outside of the bus.

(e) The lift platform shall be designed to prevent the platform from falling while in operation due to a power failure or a single component mechanical failure.

(f) The power lift shall be equipped with a manual back-up system for use in the event of a power failure.

(g) The lift shall be designed to allow the lift platform to rest securely on the ground.

(h) The outboard platform edge and sides shall be designed to restrain a wheelchair or other mobile seating device from slipping or rolling off the platform. The platform outer edge barrier shall be designed to be automatically or manually lowered when the platform is at ground level, but shall not be equipped with any type of latch which could result in a lowered barrier when the platform is above ground level.

(i) The platform shall be equipped with at least one handrail. The handrail shall be approximately 25 to 34 inches in height and a minimum of 18 inches in length and designed to fold when it is in a stored position.

(j) A self-adjusting, skid resistant plate shall be installed on the outer edge of the platform to minimize the incline from the lift platform to the ground level. This plate, if so designed, may also serve as the restraining device described in (h) above.

(k) A circuit breaker shall be installed between the power source and lift motor if electrical power is used.

(*l*) The lift design shall prevent excessive pressure that could damage the lift system when the platform is fully lowered or raised.

(m) The lift mechanism shall be designed to prevent the lift platform from being folded or stored when occupied.

(n) An interlock shall be provided to prevent the operation of the bus while the lift or ramp is not in its fully stored and locked position.

13:20-49D.9 Ramp

(a) When a power lift system is not adequate to load and unload students with special needs, a ramp device may be used.

1. When a ramp is used, it shall be of sufficient strength and rigidity to support the mobile device, occupant, and attendant(s). It shall be equipped with a protective flange on each longitudinal side to keep the mobile device on the ramp.

2. The ramp floor shall be of non-skid construction.

3. The ramp shall be equipped with handles and of a weight and design that enables one person to lift or move the ramp.

4. The ramp shall have at least three feet of length for each foot of incline.

13:20-49D.10 Restraining devices

Seat frames may be equipped with attachments or devices to which belts, restraining harnesses or other devices may be attached. Attachment framework or anchorage devices, if installed, shall conform with FMVSS.

13:20-49D.11 Seating arrangements

Flexibility in seat spacing to accommodate special devices shall be permitted to meet passenger requirements. All seating shall be forward facing.

13:20-49D.12 Securement system for mobile seating device and occupant

(a) The body shall be designed for positioning and securement of mobile seating devices and occupants in a forward facing position. Securement system hardware and attachment points for the forward facing system shall be provided.

(b) The mobile seating device securement system shall utilize four-point tie downs, with a minimum of two body floor attachment points located at the rear and a minimum of two body floor attachment points at the front of the space designated for the mobile seating device.

(c) A type 2 occupant securement system shall be provided for securement of the occupant's pelvic lap area and upper torso area.

(d) The mobile seating device and occupant securement system shall be designed to withstand a sled-test at a minimum impact speed/force of 30 mph/20 G's. The dynamic test shall be performed using system components and hardware (including attachment hardware) which are identical to the final installation in type, configuration, and positioning. The body structure at the attachment points may be simulated for the purpose of the sled test, but the simulated structure used to pass the sled test may not exceed the strength of the attachment structure to be used in the final body installation. The mobile seating device used for test purposes shall be a 150 pound powered wheelchair and the occupant shall be a 50th percentile male test dummy as specified in FMVSS. Measurements shall be made on the test dummy during the test for head acceleration, upper thorax acceleration, and upper leg compressive force. These measurements shall not exceed the upper limits established in applicable FMVSS. The test dummy shall be retained within the securement system throughout the test and forward excursion shall be such that no portion of the test dummy's head or knee pivot points passes through a vertical transverse plane intersecting the forward-most point of the floor space designed for the mobile seating device. All hardware shall remain positively attached throughout the test and there shall be no failure of any component. Each mobile seating device belt assembly including attachments, hardware and anchorages shall be capable of withstanding a force of not less than 2,500 pounds. This will provide equal mobile seating device securement when subjected to forces generated by forward, rear or side impact.

(e) The belt material at each space designated for the mobile seating device and the occupant restraint system shall be similar in size and fabric.

(f) The floor track or anchorage system shall be recessed into the floor with the top of the track or anchorage level with the floor surface or be surface mounted. If surface mounted, the maximum track or anchorage height above the floor surface shall not exceed 3/4 inch and be ramped on all sides with a ramp run/rise ratio not less than three to one.

(g) The occupant securement belt assemblies and anchorages shall meet the requirements of applicable FMVSS.

(h) The occupant securement system shall be designed to be attached to the bus body either directly or in combination with the mobile seating device securement system, by a method which prohibits the transfer of weight or force from the mobile seating device to the occupant in the event of an impact.

(i) Securement system attachments or coupling hardware not permanently attached shall be designed to prohibit it from being accidentally disconnected.

1. The following fasteners shall not be used for any occupant restraint or equipment securement:

i. T-bar or T-hook fasteners; or

ii. Touch fasteners, vinyl lap and shoulder belts.

(j) All attachment or coupling systems shall be accessible and operable without the use of tools or other mechanical assistance.

(k) All securement 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.

(l) The occupant securement system shall be made of materials which do not stain, soil, or damage an occupant's clothing.

(m) The mobile seating device or securement system hardware shall not block the access to the lift door.

(n) The following information shall be provided with each bus equipped with a securement system:

1. Detailed instructions regarding installation and use of the system, including a parts list; and

2. Detailed instructions, including a diagram, regarding the proper placement and positioning of the system, including correct belt angles.

13:20-49D.13 Steps

(a) The first step at the entrance door shall be not less than 10 inches and not more than 14 inches from the ground, based on standard chassis specifications.

1. The first step on a Type D bus at the entrance door shall be 12 to 16 inches from the ground.

(b) Step risers shall not exceed a height of 10 inches. When plywood is used on a steel floor or step, the riser height may be increased by the thickness of the plywood.

(c) On buses equipped with a power lift, the steps shall be the full width of the stepwell, excluding the thickness of the doors in an open position.

(d) The steps shall be enclosed to prevent the accumulation of ice and snow.

(e) The steps shall not protrude beyond the sides of the body line.

(f) Grab handles, not less than 20 inches in length, shall be provided inside the doorway on both sides in unobstructed locations.

13:20-49D.14 Support equipment and accessories

(a) Portable student support equipment or special accessory items (crutches, walkers, oxygen bottles, ventilators) shall be securely fastened at a mounting location able to withstand a pulling force of five times the weight of the item, or shall be retained in an enclosed, latched compartment.

1. The bus shall contain a belt cutter for use in emergencies, including evacuations. The belt cutter shall be designed to prevent injuries during use and secured in a safe location.

13:20-49D.15 Wheelchair and other mobile seating device requirements

(a) A wheelchair or other mobile seating device shall be equipped with an occupant restraint belt and hand brake which is furnished and maintained by the owner.

(b) An electric powered wheelchair shall be equipped with gel-cel (non-liquid electrolyte) battery. Batteries with liquid electrolyte are not permitted in the passenger compartment of the bus.

SUBCHAPTER 49E. AUTOBUSES APPROVED FOR PUPIL TRANSPORTATION BY THE NEW JERSEY DEPARTMENT OF TRANSPORTATION PRIOR TO MAY 21, 1993

13:20-49E.1 Scope of exceptions and exemptions

The exceptions and exemptions set forth in this subchapter shall apply to autobuses approved for school use by the New Jersey Department of Transportation prior to May 21, 1993.

Amended by R.1992 d.397, effective November 2, 1992.
See: 24 N.J.R. 2109(a), 24 N.J.R. 4069(a).
Added reference to Department of Transportation and effective date.
Amended by R.2005 d.24, effective January 18, 2005.
See: 35 N.J.R. 5483(a), 37 N.J.R. 321(a).

13:20-49E.2 Exceptions and exemptions

(a) The prohibition against advertisements of any kind on either the interior or exterior of the vehicle shall not apply.

(b) The seat requirements imposed pursuant to N.J.A.C. 13:20-49.1 and 49.3(w) shall not apply to longitudinal seats seating not more than four pupils.

(c) The entrance door and the emergency door with aisles leading to each shall be deemed to be in compliance with the requirement for doors imposed pursuant to N.J.A.C. 13:20-49.1 and 49.3(d).

(d) The requirement imposed pursuant to N.J.A.C. 13:20-49.1 and 49.3(f) to have the words "Emergency Door" applied to the inside and outside of the emergency door shall not apply.

(e) In lieu of the lettering, Type I school vehicles that are operated by a privately or publicly owned local transit system and used for regular common carrier transit route service as well as special school route service shall meet the requirements of N.J.A.C. 13:20-49.1 and 49.3(h), except as follows:

1. Such vehicles shall, while transporting children to and from school, be equipped with signs, located conspicuously on the front and back of the vehicle:

i. The sign on the front shall have the words "School Bus" printed in black letters not less than six inches high on a background of national school bus glossy yellow;

ii. The sign on the rear shall be at least ten square feet in size and shall be painted national school bus glossy yellow and have the words "School Bus" printed in black letters not less than eight inches high.

(f) The requirements for the main aisle and the aisle to the emergency door imposed pursuant to N.J.A.C. 13:20-49.1 and 49.3(a) shall not apply.

(g) The requirement pursuant to N.J.A.C. 13:20-49.1 for bumpers shall not apply.

(h) The window requirements imposed pursuant to N.J.A.C. 13:20-49.1 and 49.3(y) shall not apply.

(i) The color requirements imposed pursuant to N.J.A.C. 13:20-49.1 and 49.2(e) shall not apply.

Amended by R.1974 d.90, effective April 11, 1974.
See: 6 N.J.R. 99(a), 6 N.J.R. 172(c).
Amended by R.1992 d.397, effective November 2, 1992.
See: 24 N.J.R. 2109(a), 24 N.J.R. 4069(a).
Deleted cross reference to obsolete rules and added cross reference to current rules in N.J.A.C. 6:21-5.
Amended by R.2005 d.24, effective January 18, 2005.
See: 35 N.J.R. 5483(a), 37 N.J.R. 321(a).
Rewrote the section. Amended N.J.A.C. references throughout.

13:20-49E.3 Certificate of inspection

(a) No autobus under the jurisdiction of the Motor Vehicle Commission's Commercial Bus Inspection and Investigation Unit shall be used for school pupil transportation services, as defined in N.J.S.A. 18A:39-1 and under contract with a local board of education for transportation to and from school unless such autobus is authorized on the certificate of inspection issued by the Motor Vehicle Commission's Commercial Bus Inspection and Investigation Unit.

(b) Owners or operators of buses approved by the Motor Vehicle Commission's Commercial Bus Inspection and Investigation Unit shall submit evidence of such approval to the county superintendent at such times as may be deemed necessary.