DEPARTMENT OF TRANSPORTATION

NOTICE OF PROPOSED RULES

1) Heading of the Part: Construction Standards for School Buses

2) Code Citation: 92 Ill. Adm. Code 440

3)

Section Numbers:	Proposed Actions:
440.1000	New Section
440.2000	New Section
440.3000	New Section
440.4000	New Section
440.5000	New Section

4) Statutory Authority: Implementing Article VIII of Chapter 12 of the Illinois Vehicle Code [625 ILCS 5/Ch. 12, Art. VIII] and Section 14-3(m) of the Criminal Code of 1961 [720 ILCS 5/14-3(m)] and authorized by Section 12-812 of the Illinois Vehicle Code [625 ILCS 5/12-812].

5) A Complete Description of the Subjects and Issues Involved: A new Part 440 is being introduced to replace the old Part. Simultaneous with this proposed Part, the Department will propose to repeal 92 Ill. Adm. Code 442 (Minimum Safety Standards for the Construction of Type II School Buses). The Department's goal for these proposed rulemakings is to reorganize Part 440 and combine the school bus construction standards for both Type I (Gross Vehicle Weight Rating (GVWR) of 10,001 lbs or more) and Type II (GVWR of 10,000 lbs or less) school buses into one Part. This Part is being named "Illinois Construction Standards for School Buses" to accommodate both types of school buses. Generally, Type I and Type II school buses meet the same Federal Motor Vehicle Safety Standards (FMVSS) as mandated by the National Highway Traffic Safety Administration (NHTSA). (Type II school buses are smaller vehicles with standards appropriately corresponding to smaller vehicles.) In this newly created Part 440, the Department is proposing to apply the same standards to both Type I and Type II school buses whenever possible. Exceptions and variances for smaller Type II buses are provided throughout this new Part.

6) Published studies or reports, and sources of underlying data, used to compose this rulemaking: None

7) Will this rulemaking replace any emergency rule currently in effect? No

8) Does this rulemaking contain an automatic repeal date? No

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9) Does this rulemaking contain incorporations by reference? Yes

10) Are there any other rulemakings pending on this Part? Yes. Part 440 is being repealed elsewhere in the *Illinois Register* in conjunction with these proposed rules.

11) Statement of Statewide Policy Objective: These proposed amendments affect units of local government (i.e., school districts) that own or operate school buses.

12) Time, Place and Manner in which interested persons may comment on this proposed rulemaking: Any interested party may submit written comments or arguments concerning these proposed amendments. Written submissions shall be filed with:

Greg Stucka, Rules Manager
Illinois Department of Transportation
Office of Chief Counsel
2300 South Dirksen Parkway, Room 317
Springfield IL 62764

Comments received within 45 days after the date of publication of this *Illinois Register* will be considered. Comments received after that time will be considered, time permitting.

13) Initial Regulatory Flexibility Analysis:

A) Types of small businesses, small municipalities and not-for-profit corporations affected: These proposed amendments affect small businesses that manufacture school buses registered for use in Illinois. These proposed amendments also affect small businesses, small municipalities, and not-for-profit corporations that own or operate school buses.

B) Reporting, bookkeeping or other procedures required for compliance: No impact is anticipated.

C) Types of professional skills necessary for compliance: No impact is anticipated.

14) Regulatory Agenda on which this rulemaking was summarized: July 2017

The full text of the Proposed Rules begins on the next page:

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TITLE 92: TRANSPORTATION
CHAPTER I: DEPARTMENT OF TRANSPORTATION
SUBCHAPTER e: TRAFFIC SAFETY (EXCEPT HAZARDOUS MATERIALS)

PART 440
CONSTRUCTION STANDARDS FOR SCHOOL BUSES

Section
440.1000 Applicability
440.2000 Definitions
440.3000 Incorporation by Reference
440.4000 Certification by Manufacturer
440.5000 Body and Chassis Requirements

AUTHORITY: Implementing Article VIII of Chapter 12 of the Illinois Vehicle Code [625 ILCS 5/Ch. 12, Art. VIII] and Section 14-3(m) of the Criminal Code of 1961 [720 ILCS 5/14-3(m)] and authorized by Section 12-812 of the Illinois Vehicle Code [625 ILCS 5/12-812].

SOURCE: Filed June 20, 1977; amended at 6 Ill. Reg. 7147, effective June 2, 1982; codified at 8 Ill. Reg. 15502; amended at 11 Ill. Reg. 15947, effective September 21, 1987; amended at 12 Ill. Reg. 8463, effective May 3, 1988; amended at 16 Ill. Reg. 1655, effective January 14, 1992; amended at 17 Ill. Reg. 3530, effective March 2, 1993; amended at 18 Ill. Reg. 14764, effective September 20, 1994; amended at 22 Ill. Reg. 19354, effective October 15, 1998; expedited correction at 23 Ill. Reg. 5918, effective October 15, 1998; emergency amendment at 24 Ill. Reg. 4993, effective March 10, 2000, for a maximum of 150 days; amended at 24 Ill. Reg. 12111, effective July 31, 2000; emergency amendment at 24 Ill. Reg. 16391, effective October 20, 2000, for a maximum of 150 days; amended at 25 Ill. Reg. 3307, effective February 20, 2001; amended at 26 Ill. Reg. 3219, effective February 19, 2002; amended at 31 Ill. Reg. 1881, effective January 8, 2007; amended at 32 Ill. Reg. 17983, effective November 10, 2008; former Part repealed at 41 Ill. Reg. _____, and new Part adopted at 41 Ill. Reg. _____, effective _____.

Section 440.1000 Applicability

This Part applies to the construction of any Type I or Type II school bus manufactured for use in Illinois or operated by or for an Illinois school K-12 (public or private). The Department's Bureau of Investigations and Compliance is responsible for the enforcement of this Part.

Section 440.2000 Definitions

"Body" means the portion of a bus that encloses the occupant and cargo spaces and separates those spaces from the chassis frame, engine compartment, driveline, and other chassis components, except certain chassis controls used by the driver.

"Chassis" means every frame or supportive element of a vehicle whether or not a manufacturer's identification number, serial number, or other identifying numbers are present on that part. (IVC Section 1-111.1b)

"Child Check System" means an electronic monitoring system used for ensuring that no passengers remain on the school bus at the end of a route, a work shift, or the work day. The system shall require the school bus driver to walk to the rear of the bus to deactivate the system before the driver leaves the bus. The vehicle's interior lights shall illuminate when the ignition is turned off to assist the driver in seeing in and under the seats during a visual sweep of the bus.

"Code" or "IVC" means the Illinois Vehicle Code [625 ILCS 5].

"Curb Weight" means the weight of a motor vehicle with standard equipment; maximum capacity of engine fuel, oil, and coolant; and, if so equipped, air conditioning and additional weight optional engine. (49 CFR 571.3)

"Diameter" means a straight line passing from side to side through the center of a body or figure, especially a circle or sphere.

"Driver" means every person who drives or is in actual physical control of a vehicle. (IVC Section 1-116)

"Empty Weight" see "Curb Weight"

"FMVSS" means the rules and standards set forth in 49 CFR 571. The FMVSS are commonly known as the Federal Motor Vehicle Safety Standards.

"Forward Control" means a configuration in which more than half of the engine length is rearward of the foremost point of the windshield base and the steering wheel hub is in the forward quarter of the vehicle length (includes mid-engine and rear-engine "pusher" buses). (FMVSS 3)

"Gross Vehicle Weight Rating" or "GVWR" means the value specified by the manufacturer as the loaded weight of a single vehicle. (IVC Section 1-124.5)

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"Incomplete Vehicle" means an assemblage consisting, at a minimum, of frame and chassis structure, power train, steering system, suspension system, and braking system, to the extent that those systems are to be part of the completed vehicle, that requires further manufacturing operations (other than the addition of readily attachable components such as mirrors or tire and rim assemblies or minor finishing operations, such as painting) to become a completed school bus for use in Illinois.

"Integral Type" bus means a completed vehicle either without separate body and chassis or with body and chassis joined into one unit.

"Manufacturer" (unless otherwise indicated at the point of use) means the person or organization whose name follows "MANUFACTURED BY" or "MFD BY" on the certification labels required in Section 440.4000.

"Multifunction School Activity Bus" or "MFSAB" means a school bus manufactured for the purpose of transporting 11 or more persons, including the driver, whose purposes do not include transporting students to and from home or school bus stops. An MFSAB is prohibited from meeting the special requirements for school buses in IVC Sections 12-801, 12-803, 12-805 and Section 12-802(a). (IVC Section 1-148.3a-5)

"Nonhitchable" means the rear of the bus being designed and maintained to prevent or discourage riding or grasping the rear of the bus so as to "hitch" rides.

"Passenger" means every bus occupant who is not the driver.

"Safety Equipment" means the fire extinguisher, first-aid kit, and warning devices.

"School Bus" or "Bus" means:

> *Every motor vehicle, except as provided in this definition, owned or operated by or for any of the following entities for the transportation of persons regularly enrolled as students in grade 12 or below in connection with any activity of that entity:*
>
> > *Any public or private primary or secondary school;*

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Any primary or secondary school operated by a religious institution; or

Any public, private or religious nursery school.

This definition shall not include the following:

A bus operated by a public utility, municipal corporation or common carrier authorized to conduct local or interurban transportation of passengers when that bus is not traveling a specific school bus route but is:

On a regularly scheduled route for the transportation of other fare paying passengers;

Furnishing charter service for the transportation of groups on field trips or other special trips or in connection with other special events; or

Being used for shuttle service between attendance centers or other educational facilities.

A motor vehicle of the first division.

A multifunction school-activity bus. (IVC Section 1-182)

"Type I School Bus" means a school bus with a Gross Vehicle Weight Rating of more than 10,000 pounds. (IVC Section 1-213.4)

"Type I-A School Bus" means a term commonly used by school bus manufacturers to classify a Type I school bus that is a conversion or body constructed upon a van-type or cutaway front-section vehicle with a left side driver's door, designed for carrying more than 10 persons. The Type I-A school bus has a GVWR of more than 10,000 pounds.

"Type II School Bus" means a school bus with a Gross Vehicle Weight Rating of 10,000 pounds or less. (IVC Section 1-213.5)

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Section 440.3000 Incorporation by Reference

a) Incorporation by Reference

1) Each bus body and chassis shall conform to the applicable provisions of the FMVSS (October 1, 2016).

2) Each bus body and chassis shall conform to the applicable provisions of 49 CFR 567 (Certification) and 49 CFR 568 (Vehicles Manufactured in Two or More Stages) (October 1, 2016) that were in effect on the first day of the month in which the chassis manufacturer completed the last manufacturing operation on the incomplete bus.

3) Each school bus shall conform to the applicable Society of Automotive Engineers Standards and Practices (SAESP) (2016 edition).

b) The incorporations by reference in this Section are as of the date stated and include no later amendments or editions.

c) Copies of the materials incorporated by reference in this Section are available for inspection at the Illinois Department of Transportation, 2300 S. Dirksen Parkway, Springfield IL 62764 or by calling (217)785-1181. The federal standards are available on the U.S. Government Publishing Office's website at http://www.ecfr.gov.

Section 440.4000 Certification by Manufacturer

a) The manufacturer shall certify that the bus conforms to all applicable federal and State standards in effect on the first day of the month for the month and year of manufacture.

b) The federal certification shall be in the form of a label that meets the requirements of 49 CFR 567. The federal certification label shall be affixed to the bus when the bus is delivered to the purchaser as well as when the bus is submitted for safety tests as required by IVC Section 13-109.

c) For school buses originally manufactured for use in Illinois, the manufacturer shall also certify that the bus conforms to the requirements of this Part. The State certification label shall:

1) Display the manufacturer's name;

2) Identify the bus by its Vehicle Identification Number (VIN);

3) State that the bus conforms to all applicable provisions of this Part; and

4) Be affixed to the bus when the bus is delivered to the purchaser.

Section 440.5000 Body and Chassis Requirements

a) Aisle

1) For Type I and Type I-A school buses, the floor to ceiling height shall be a minimum of 1.75 m (69") above the entire width of the aisle.

2) For Type II school buses, the floor to ceiling height shall be a minimum of 1.52 m (60") above the entire width of the aisle.

3) Optional: A dedicated aisle that conforms to FMVSS 217 may be adjacent to any side emergency door.

b) Barriers, Guard

1) Guard barriers that conform to FMVSS 222 are required on Type I, Type II, and Type I-A school buses.

2) Guard barriers shall be installed in front of each forward facing passenger seat that does not directly face the rear surface of another passenger seat. The barrier shall measure the same height as the passenger seat back directly behind that barrier.

3) See 92 Ill. Adm. Code 444 for special education school bus exceptions.

c) Battery or Batteries

1) At least one properly connected battery shall be installed.

2) A battery disconnect switch shall be provided to shut power off from the battery or batteries. The switch shall be accessible from the exterior and labeled as prescribed in Section 440.5000(y)(17).

d) Battery Compartment (Optional)

1) When the battery is mounted outside the engine compartment, it shall be attached securely in an exterior, closed, and vented compartment that is located and arranged so as to provide for convenient routine servicing.

2) A latch or fastener shall be designed in such a fashion as to keep the door closed when in the latched position.

3) Each electrical cable connecting the battery or batteries in this compartment to the body or chassis shall be one piece between the battery terminal connector and the first body or chassis terminal connector.

4) Exception: For Type II and Type I-A school buses, the battery may be located in the interior of the bus in a closed, sealed, and ventilated compartment.

e) Bumper, Front

1) The front bumper shall be channel-type cross-section formed from rolled steel at least 4.5 mm (.177") thick. The bumper shall have not less than a 20.32 cm (8") vertical face and shall extend to protect the outer edges of the fender (or the body of a forward control bus).

2) The bumper shall be of sufficient strength to permit pushing another vehicle of equal gross weight without permanent distortion.

3) Exception: Type II and Type I-A school buses may meet manufacturer's specifications.

f) Bumper, Rear

1) The rear bumper shall be channel-type cross-section with the top edge at least 22.86 cm (9") above the bottom edge. The bumper shall be formed from rolled steel at least 4.55 mm (.177") thick, and shall wrap around the

rear corners of the body to a point at least 30.48 cm (12") forward of the rearmost point of the body at floor line.

2) The rear bumper shall be nonhitchable as defined in Section 440.2000.

g) Cameras, Exterior and Interior (Optional)

1) Exterior. If equipped, exterior cameras shall be black, school bus yellow, or gray and shall not obstruct any required lettering or lamps.

2) Interior. If equipped, interior cameras shall not be located on the dash or in the driver's field of view. The cameras shall not obstruct any required lettering or lamps.

3) See Lettering at subsections (y)(18) and (19) for applicable decal requirements.

h) Certificate and Registration Card Holder
At least 1 card holder with a transparent face no less than 15.24 cm (6") by 10.16 cm (4") shall be securely affixed to the interior front bulkhead.

i) Child Check System
If a child check system is installed, the system shall assist the driver by illuminating an interior light or lights on the bus when the ignition is turned off or when the ignition is turned to the "accessories" position. (See IVC Section 12-816.)

AGENCY NOTE: A manual child check system may be utilized by the school bus owner.

j) Communication Device
Each school bus shall contain either a cellular radio telecommunication device (i.e., cell phone) or an operating two-way radio while the school bus driver is in possession of the bus.

AGENCY NOTE: The manufacturer may elect to install a two-way radio at the time of manufacture; however, a communication device (i.e., two-way radio or cellular radio telecommunication device) can also be installed by the owner after the school bus is purchased.

k) Crossing Control Arm

1) Shall meet or exceed the wiring requirements of SAESP J1133 (Revised June 2011).

2) Shall be capable of full operation between, and including, the temperatures -40º F and 160º F.

3) The arm, when activated, shall extend a minimum of 5 feet from the front face of the bumper.

4) The arm shall be mounted on the far right side (entry side) of the front bumper.

5) Appropriate brackets shall be used to attach the arm to the front bumper for proper operation and storage.

6) All component parts shall meet or exceed any applicable federal motor vehicle safety standards in effect at the time of manufacture.

7) The arm shall extend at the same time the stop arm panel extends. An independent on/off switch is prohibited.

8) If the driver can stop the arm from extending with the use of an optional momentary override switch, the arm sequence shall automatically reset once the service door is closed.

9) Red lights and/or red reflectors are prohibited.

l) Dash
The dash area below the windshield shall be free of all obstructions. This includes, but is not limited to, two-way radios, GPS systems, pencil holders, decorations, or any other obstacle that may obstruct a school bus driver's field of view.

m) Drive Shaft Guard
A suitable guard shall be provided for each segment of the drive shaft to prevent accident or injury if the shaft breaks or becomes disconnected.

n) Emergency Exits

1) All emergency exits shall conform to the applicable requirements of FMVSS 217.

2) Each emergency exit shall be equipped with an interior opening device that may be quickly released but that is designed to offer protection against accidental release. Each rear emergency door exterior release handle shall be nonhitchable as defined in Section 440.2000.

3) All requirements of FMVSS 217 shall be met; however, only yellow retroreflective tape is to be displayed on the exterior surface of the bus (excluding the roof). Yellow retroreflective tape can be located on the rear bumper or on or immediately beneath the rub rail provided the space under the emergency exit door or emergency exit window is not adequate to accommodate the tape, or, provided rivets are present that prohibit the tape from being applied properly. Emergency roof exits shall be outlined in red, yellow, or white retroreflective tape.

4) Continuous audible and visible alarms shall alert the driver when the engine is running and any emergency exit door either:

A) Is not fully latched; or

B) Is locked and not readily operated manually.

5) A continuous audible alarm shall alert the driver when the engine is running and any emergency exit window is not fully latched.

6) The engine starting system shall not operate while any emergency exit door is locked from either inside or outside the bus. "Locked" means that the release mechanism cannot be activated and the exit cannot be opened by a person at the exit without a special device such as a key or special information such as a combination.

7) An alarm cut-off or "squelch" control is prohibited.

8) Exception: No alarm is required for emergency roof exits.

o) Exhaust System

1) The exhaust pipe, muffler, and tail pipe shall be outside the bus body and attached to the chassis.

2) The exhaust system shall be insulated from any insulated wire, flammable material, brake hose or line, or fuel system component by a securely attached metal shield at any point where the exhaust system is 30.48 cm (12") or less (10.16 cm (4") or less if diesel powered engine) from the component.

3) For Type I school buses, the engine exhaust tail pipe shall discharge at the rear of the bus and shall extend to no more than 2.54 cm (1") beyond the rear bumper. The tail pipe cannot be located under any rear emergency exit door.

4) For Type II and Type I-A school buses, the following shall be met:

A) The exhaust system of a bus powered by a gasoline engine shall discharge to the atmosphere at or within 15.24 cm (6") forward of the rearmost part of the bus.

B) The exhaust system of a bus using fuels other than gasoline shall discharge to the atmosphere either:

i) At or within 38.1 cm (15") forward of the rearmost part of the bus; or

ii) To the rear of all doors or windows designed to be open except windows designed to be opened solely as emergency exits.

5) The auxiliary heating system shall direct its exhaust discharge outside the perimeter of the bus body. The exhaust shall discharge on the driver's side of the bus and shall not discharge under any door.

6) Exhaust components, except flexible components, shall be made of either stainless steel or a commercial heat and corrosion-resistant material. All flexible components shall be made of stainless steel.

p) Fire Extinguisher

1) Except when carried in the storage compartment, a dry chemical fire extinguisher, with pressure gauge, shall be mounted in an automotive-type quick release bracket and located in the view of, and readily accessible to, the driver.

2) The fire extinguisher shall be approved by the Underwriters' Laboratories, Inc., with a rating not less than 10-B:C.

3) If the extinguisher's operating mechanism is sealed, the seal shall not interfere with the operation of the fire extinguisher.

4) Halon fire extinguishers (10-B:C) are permitted.

AGENCY NOTE: A fire extinguisher is required to be carried on each school bus transporting students. The manufacturer may elect to install the fire extinguisher at the time the school bus is manufactured; however, a fire extinguisher can also be installed by the owner after the school bus is purchased.

q) First-Aid Kit

1) The first-aid kit shall be readily identifiable and readily accessible to the driver. The kit shall be dust tight and substantially constructed of durable material. If the kit is not carried in the storage compartment as authorized in subsection (nn), it shall be in view of the driver.

2) The first-aid kit shall include, at a minimum, the following:

A) 4" bandage compresses – 2 compresses

B) 2" bandage compresses – 8 compresses

C) 1" bandages or adhesive compresses – 32 bandages or compresses

3) A tourniquet or any type of ointment, antiseptic, or other medicine cannot be included.

4) An epinephrine auto-injector or injectors may be present in the first-aid kit. (See 105 ILCS 5/22-30(f).)

AGENCY NOTE: A first-aid kit is required to be carried on each school bus transporting students. The manufacturer may elect to install the first-aid kit at the time the school bus is manufactured; however, a first-aid kit can also be installed by the owner after the school bus is purchased.

r) Floor Covering

1) All portions of the floor that come in contact with passengers' or driver's footwear shall be covered with a waterproof material. This floor covering shall not crack when subjected to sudden temperature change and shall be bonded securely to the floor with a waterproof substance. All seams and openings shall be filled with a waterproof sealer.

2) The floor covering in the aisles and entrance area shall be of non-skid, wear-resistance type material commonly used in commercial passenger transportation vehicles.

s) Footholds and Grab Handles

1) One grab handle and one recessed foothold (or folding stirrup) shall be installed on each side of the bus at the front of the body so as to provide easy access to the windshield for cleaning purposes.

2) Exception: Type II and Type I-A school buses are exempt.

t) Heaters

1) An interior temperature of not less than 10º Celsius (50º F) shall be maintained throughout the bus while the bus is moving at 75 kilometers per hour (46.6 miles per hour) in calm air at the average minimum January temperature, as established by the National Weather Service, U.S. Department of Commerce, for the area in which the bus is to be operated.

2) Each heater shall bear a nameplate that identifies the heater manufacturer and the heater capacity rating when tested as recommended in the SAESP J638 (Revised June 1982), or when tested in accordance with another nationally recognized standard or code. The recommended practice, standard, or code under which the heater is rated shall be identified on the nameplate. The nameplate shall constitute certification by the heater manufacturer that the heater performance is as shown on the plate.

3) The primary heater shall be a high output, fresh-air type.

4) The secondary heater may be of a recirculating type, and located so as not to interfere with aisle space. Each secondary heater shall display a nameplate that identifies the manufacturer and the heater capacity rating.

5) Auxiliary fuel-fired heating systems are permitted, provided they comply with the following:

A) The auxiliary heating system fuel shall utilize the same type of fuel as specified for the vehicle engine;

B) The heater or heaters may be direct hot air or connected to the engine's coolant system;

C) An auxiliary heating system, when connected to the engine's coolant system, may be used to preheat the engine coolant or preheat and add supplementary heat to the bus' heating system;

D) Auxiliary heating systems shall be installed pursuant to the manufacturer's recommendations and shall not direct exhaust in such a manner that will endanger bus passengers. The system shall direct the exhaust discharge outside the perimeter of the bus' body on the driver's side. The system shall not discharge under any door;

E) Auxiliary heating systems that operate on diesel fuel shall be capable of operating on:

i) a hot water and/or combustion type heater;

ii) if only one heater is used, a fresh-air or combination fresh-air and recirculation type heater; or

iii) blended diesel fuel without the need for system adjustment; and

F) The auxiliary heating system shall be low voltage.

6) Stepwell heaters are optional.

u) Horn

1) At least one horn shall be installed that is *capable of emitting sound audible under normal conditions from a distance of not less than 200 feet.* (IVC Section 12-601). The horn shall be controlled conveniently by the seated driver and tested in accordance with SAESP J377 (Revised December 2007).

2) An optional exterior air horn is permitted.

v) Instrument Panel
The bus shall be equipped with an illuminated instrument panel that contains the following:

1) Air pressure or low vacuum pressure (when air pressure or vacuum is utilized either to apply or to assist in applying the service brakes) (gauge and low air pressure or vacuum warning device);

2) Ampere meter, volt meter, or discharge indicator lamp;

3) Engine coolant temperature (gauge or indicator lamp);

4) Engine oil pressure (gauge or indicator lamp);

5) Fuel gauge;

6) High beam indicator lamp;

7) Odometer (may be combined with speedometer);

8) Parking brake indicator lamp;

9) Speedometer that measures miles per hour;

10) Service brake indicator lamp; and

11) Turn signal indicator lamp.

w) Insulation
The ceiling and sidewalls shall be thermally insulated with a fire-resistant material that reduces heat transfer and the interior noise level.

x) Lamps and Signals

1) General. Light emitting diode (LED) lamps that meet applicable FMVSS or SAESP standards are acceptable. Two or more lamps or reflectors may be combined if the requirements for each lamp or reflector are met. However, no clearance lamp shall be combined with a tail lamp. (See FMVSS 108.)

2) Alternately Flashing Signal Lamps. Each bus shall be equipped with an eight lamp alternately flashing signal system that conforms to FMVSS 108 and IVC Section 12-805. A separate circuit breaker and a separate master switch located on the instrument panel shall be provided for the signal system. When in its "off" position, this master switch shall prevent operation of the eight lamp system; shall prevent operation of any lamps mounted on the stop signal arm panel required under subsection (mm); and shall prevent operation of any electrically controlled mechanism that would cause the stop signal arm panel to extend. No system shall override the yellow (amber) flashing lamps and proceed directly to the red flashing lamps. The controls for the eight lamp flashing signals, the stop signal arm panel, and the service entrance door shall be arranged so as to provide for the following sequence of operations while the engine is running:

A) Place the alternately flashing signal system master switch in its "off" position. Close and secure the service entrance door. Actuate the alternately flashing signal system hand or foot control.

The alternately flashing signal lamps of either yellow or red color shall not go on.

B) With the master switch "off" and the hand or foot control actuated, open the service door. The alternately flashing signals of either color shall not go on and the stop signal arm panel shall not extend.

C) Deactivate the hand or foot control. Place the alternately flashing signal system master switch in its "on" position. Close and secure the service door. Then open the service door. The alternately flashing signal lamps of either color shall not go on and the stop signal arm panel shall not extend.

D) Close and secure the service door. Actuate the alternately flashing signal system by hand or foot control. A yellow pilot lamp in the view of the driver and the yellow alternately flashing signals shall go on.

E) De-secure but do not open the service door. The yellow pilot and the yellow alternately flashing signals shall go off. A red pilot lamp in the view of the driver and the red alternately flashing signals shall go on. The stop signal arm panel shall extend.

F) Fully open the service door. The red pilot and red signals shall remain on and the stop arm shall remain extended.

G) Close but do not secure the service door. The red pilot and red signals shall remain on and the stop arm shall remain extended.

H) Open the service door. The red pilot and red signals shall remain on and the stop arm shall remain extended.

I) Close and secure the service door. The red pilot and red signals shall go off and the stop arm shall retract.

J) Open the service door. Alternately flashing signals of either color shall not go on and the stop arm shall not extend.

3) Interior. At a minimum, the nosings of the service entrance steps, the stepwell, the entire aisle, and each emergency door and emergency exit shall be illuminated by at least two lamps emitting a white light. The nosings of the service entrance steps and the floor around the stepwell shall be illuminated automatically by opening of the service door while the headlights are on.

4) Rear Turn Signals. Yellow turn signal lamps shall be mounted on the rear as far apart as practical and as high as practical but below the rear window. The effective projected illuminated area of these turn signal lamps shall be no less than required for the yellow alternately flashing signal lamps required under subsection (x)(2); i.e., .0122 m^2 (19 in^2).

5) Side Turn Signals. Two yellow side turn signal lamps conforming to SAESP J914 (Revised August 2014) shall be installed. The lamps shall be mounted on the body between the rub rails. The right lamp shall be within 1 m (39.4") of the rear of the service entrance but, on a forward control bus, not forward of the front axle. The left lamp shall be approximately the same distance from the front bumper as the right lamp. Additional (optional) side turn signals shall be yellow (amber). Exception: Type II and Type I-A school buses are exempt.

6) Stop Signals. Red stop lamps shall be mounted on the rear as far apart as practical but closer to the vertical centerline of the bus than the rear turn signal lamps required under subsection (x)(4), and at the same height as those turn signal lamps. The effective projected illuminated area of these stop lamps shall be no less than required for the red alternately flashing signal lamps required under subsection (x)(2); i.e., .0122 m^2 (19 in^2).

7) Strobe

A) *One per bus;*

B) *Shall emit white or bluish-white light;*

C) *Shall be visible from any direction;*

D) *Shall flash 60 to 120 times per minute;*

E) *Shall be visible in normal sunlight;*

F) *Shall be mounted on the rooftop of the bus with the light generating element in the lamp located equidistant from each side and either at or behind the center of the rooftop.* (IVC Section 12-815) The location of the lamp from the rear of the bus will be calculated by measuring the height of the filament and multiplying it by 30 inches (i.e., filament height measured from the base of the filament x 30 = distance from rear of bus where lamp is to be located);

G) If a roof exit, air conditioner, or the size of the bus interferes with the placement of a strobe as required by subsection (x)(7)(F), shall be placed to the rear of the roof exit or air conditioner as near as practicable above the rear axle, horizontally centered between the rear tires.

8) Supplemental Warning Lights (Optional)
Supplemental warning lights that measure approximately 127 mm (5") long with a depth of 17.27 mm (.68") may be installed on the front and rear of the bus. If present, the front supplemental lights shall be red and installed directly above the bumper between and as close to the headlight assemblies as practicable. If present, the rear supplemental lights shall be red and installed above the bumper and as far as practicable to the edge of the school bus. The lights shall activate when the stop arm panel is deployed.

y) Lettering

1) General. Except where otherwise required or allowed, lettering on the exterior of the body shall be black against a national school bus glossy yellow background. All required letters and numerals shall conform to Series "B", or heavier series, of the Standard Alphabets for Highway Signs issued by the Federal Highway Administration. Decals may be used instead of paint. Signs, numbers, or letterings, other than those either required by IVC Section 12-802 or required or permitted by this Part, shall not be affixed permanently on either the exterior or the interior of the bus. All lettering shall contrast with its background.

2) The words "SCHOOL BUS" shall be displayed against a national school bus glossy yellow background as high as practical and approximately centered on the front and rear of the bus body, in letters at least 20.32 cm (8") high. (See IVC Section 12-802.) These words may be painted on or applied to the bus body or displayed on a sign firmly attached to or built into the body. The background of an illuminated sign shall resemble the national school bus glossy yellow color.

3) A school bus identification number shall be displayed as high as practical on the front and rear of the bus in numerals not less than 10.16 cm (4") high. The number may be displayed on the sides of the bus as specified by the purchaser. As an option, identification numbers may also be located on the rooftop.

4) *The name of the owner or the entity or both for which the school bus is operated shall be painted in* black *on both sides, centered as high as practicable below the window line, in letters at least 4 inches high.* (IVC Section 12-802) The lettering shall be located on one line.

5) The body and/or chassis manufacturer's name, emblem, or other identification may be displayed, colorless or in any color, on any unglazed surface of the bus so as not to be mistaken for the name required in subsection (y)(4), and so as not to interfere with any required letters or numerals.

6) The words "EMPTY WEIGHT", or the abbreviation "EMPTY WT.", or the letters "E.W.", followed by the empty weight (i.e., curb weight) of the bus, as defined in Section 440.2000, stated in pounds, shall be displayed on the exterior of the body near the rear edge of the service entrance in numerals and letters at least 5 cm (2") high. (See IVC Section 12-802.)

7) The word "CAPACITY", or the abbreviation "CAP.", and the rated passenger capacity followed by the word "PASSENGERS", or the abbreviation "PASS.", shall be displayed on the exterior of the body near the rear edge of the service entranceway, and on the interior front bulkhead above the windshield, viewable from the passenger area and in numerals and letters at least 5 cm (2") high. (See IVC Section 12-802.) The driver's seat is not counted as a passenger space.

8) The words "NO STANDEES" or "NO STANDEES PERMITTED" shall be displayed on the interior front bulkhead viewable from the passenger area in letters at least 5 cm (2") high.

9) The words "EMERGENCY DOOR" or "EMERGENCY EXIT" in letters at least 5 cm (2") high shall be displayed on the interior and exterior of the bus. "EMERGENCY DOOR" shall be displayed at the top of, or directly above, any emergency exit door. "EMERGENCY EXIT" shall be displayed at the top of, or directly above, or at the bottom of, any emergency exit window. Any emergency exit lettering (interior or exterior) that is applied directly to glazing shall be displayed on a separate colorless background (such as white, aluminum, or silver) that extends no more than 1.27 cm (.5") above or below the words and no more than 2.54 cm (1") to the right or left of the words.

10) For roof exits, the words "EMERGENCY EXIT" in letters at least 5 cm (2") high shall be displayed on the interior of the bus in a color that contrasts with its background. The label shall be located on an inside surface of the exit, or within 30 cm (11.8") of the roof exit opening.

11) A black arrow, curved or straight, at least 15.24 cm (6") in length and 1.27 cm (.5") in width, showing the direction each exterior emergency exit release mechanism is to be moved to open the emergency exit, shall be painted or permanently affixed on the exterior yellow portion of the bus within 15.24 cm (6") of each release mechanism.

12) An arrow showing the direction each interior emergency exit release mechanism is to be moved to open the emergency exit shall be painted or permanently affixed on the interior of the bus within 15.24 cm (6") of each emergency exit release mechanism. Each interior arrow shall contrast with its background and, where suitable space is limited, may be smaller than the exterior arrows but must be conspicuous.

13) Alternate Fuel

A) If the bus is powered by an alternate fuel (e.g., propane, CNG), the bus shall be marked with an identifying decal. The decal shall be diamond shaped with white or silver scotchlite letters 2.54 cm (1")

in height on a black background with a white or silver scotchlite border bearing either the words or letters:

"PROPANE" − If propelled by liquefied petroleum gas; or

"CNG" − If propelled by compressed natural gas.

The sign or decal shall be maintained in good legible condition.

B) The alternate fuel decal shall be displayed near the rear bumper and visible from the rear of the bus. (See IVC Section 12-704.3.)

14) The vehicle's length (rounded up to nearest whole foot) preceded by the word "Length" or "LENGTH" shall be displayed on or adjacent to the interior front bulkhead clearly within the driver's view. (For example: vehicle length of 39.1 feet will be displayed as LENGTH or Length 40 FEET or feet.) Each letter or numeral shall be at least 5 cm (2") high and in a color that contrasts with its background. The measurement shall be taken from the front bumper to the rear bumper.

15) A "Stop Line" in contrasting color is required between 14.9 cm (5.9") and 15.4 cm (6.1") below the top of each side window opening. The line shall be located between each window that slides downward and may be intermittent.

16) The decal described in this subsection (y)(16) is required to be displayed on every school bus registered in Illinois. The school bus manufacturer may elect to apply the decal at the time the school bus is manufactured or the decal may be applied by the school bus owner after the school bus is purchased. A white decal with black lettering and numerals that measure 2.5 cm (1") high shall be displayed on the rear of the bus. The decal shall display the words "TO COMMENT ON MY DRIVING CALL" followed by the area code and phone number of the bus owner. The decal shall be located on the rear window glazing below the rear seat back or on the bus body below the rear window line. The decal shall be visible to the motoring public from the rear of the bus and cannot obstruct any required lettering or numerals. The decal cannot be located on any emergency door glazing or any emergency window glazing. Magnetic signs are prohibited. Optional lettering may be present that requests the bus identification

number, along with the date and time of the alleged violation. (See IVC Section 12-821.)

17) A black 2.54 cm (1") label identifying the location of the battery disconnect switch shall be on the exterior surface of the bus.

18) If an audio and/or visual recording will be made of the interior of the school bus, decals indicating the recording shall be displayed on the bus. The school bus manufacturer may elect to apply the decals at the time the school bus is manufactured or the decals may be applied by the school bus owner after the school bus is purchased. Two white decals with black lettering measuring 2.5 cm (1") high shall be displayed, one on the exterior of the bus' body adjacent to the service entrance door and a second one on the front interior bulkhead, viewable from the passenger area. The exterior decal shall be located between 1.01 m (40") and 1.65 m (65") from the road surface. The interior decal shall not obstruct any other required lettering on the front bulkhead. Magnetic signs are prohibited. (See 720 ILCS 5/14-3(m).)

19) If the school bus is equipped with an exterior camera that monitors stop arm panel violations, a decal shall be located on the exterior left rear window glazing, below the seat back, or on the bus' body, below the window line. The decal shall display "TRAFFIC ENFORCEMENT CAMERA IN USE". The decal shall be visible to the motoring public from the rear of the bus and cannot obstruct any required lettering or numerals. The decal shall not be located on the rear bumper or on any emergency window or door (includes glazing). Magnetic signs are prohibited. The decal shall be white with black lettering that measures 2.54 cm (1") high.

20) The interior storage compartment shall be labeled to indicate its contents. The label or labels shall measure at least 2.54 cm (1") high and contrast with their background. "SAFETY EQUIPMENT" may be displayed to include the fire extinguisher, first-aid kit, and warning devices or the following may be displayed on the compartment door:

A) "FIRE EXTINGUISHER" may be displayed if the fire extinguisher is located in the storage compartment.

B) "FIRST-AID KIT" may be displayed if the first-aid kit is located in the storage compartment.

C) "WARNING DEVICES" may be displayed if the warning devices are located in the storage compartment.

21) Optional: A decal designating the type of fuel used in the bus may be displayed on the exterior surface of the bus. If present, the decal shall display black lettering that measures 2.54 cm (1").

22) Optional: A "No Smoking" decal may be posted on the interior surface of the bus in 2.54 cm (1") lettering that contrasts with its background.

23) Optional: A route identification marker (holder or bracket) is allowed on the right side of the bus. The holder or bracket may be located on the body of the bus directly behind the service entrance door or in the first window directly behind the service entrance door. The holder or bracket shall be no larger than 20.32 cm (8") high x 30.48 cm (12") wide.

24) Optional: A decal or decals may be present that prohibit trespassing on the bus. If present, the decal or decals shall display "NO TRESPASSING" on the first line and "Offenders will be prosecuted to the fullest extent of the law!" on the second line. The lettering shall be black and measure 2.54 cm (1") on a white background. If present, the decal or decals shall be posted on the exterior surface of the bus's body adjacent to the service entrance door or on the interior riser of the top stair or both. If present, the exterior decal shall be located between 53.34 cm (21") and 1.65 m (65") from the road surface.

z) Mirrors

1) Interior Mirror:

A) For Type I school buses, a mirror that measures at least 15.24 cm (6") x 76.2 cm (30") overall shall be located inside the bus.

B) For Type II and Type I-A school buses, a mirror that measures at least 15.24 cm (6") x 30.48 cm (12") overall shall be located inside the bus.

C) Interior mirrors shall not obstruct any required lettering. The interior mirror shall afford the driver a view of the bus' interior and portions of the roadway to the rear. The mirror shall be firmly supported and constructed of clear-view safety glass. The mirror shall be securely backed and framed with rounded corners and padded edges.

2) All exterior mirror systems shall conform to the applicable requirements of FMVSS 111.

3) Optional: If specified by the purchaser, additional convex mirrors may be installed.

aa) Paint, Exterior

The exterior of each school bus shall be national school bus glossy yellow except as follows:

1) The rooftop may be white. An optional white roof shall terminate at any point from the top of the drip rail to 15.24 cm (6") above the drip rail. The front and rear roof caps shall remain national school bus glossy yellow.

2) Body trim, rub rails, lettering other than on a stop signal arm, and bumpers shall be glossy black.

3) The hood and upper cowl may be lusterless black or lusterless school bus yellow.

4) Grilles on the front and lamp trim may be a bright finish. Grille covers (i.e., winter fronts) shall be yellow, black, or white.

5) Hubcaps may be a bright finish. Hubcap color is manufacturer's option. Wheels and rims shall be black, gray, or aluminum.

6) The name or emblem of a manufacturer may be colorless or any color. (See IVC Section 12-801.)

bb) Pedals

DEPARTMENT OF TRANSPORTATION

NOTICE OF PROPOSED RULES

1) Original Equipment Manufacturer (OEM) or comparable aftermarket pedal extensions are permitted. Makeshift pedal extensions are prohibited.

2) The brake pedal and any brake pedal extension shall be a rigid nonslip design.

cc) Projections

1) Exterior
The entire rear and bumper area of the bus shall be nonhitchable as defined in Section 440.2000.

2) Interior

A) Projections (e.g., external speakers and air conditioners) located in the student seating area and within 1.50 m (59") from the floor shall be padded to prevent injury, including the inner lining of the ceiling and walls. All exposed lapped joints shall be connected and/or treated to reduce the likelihood of injury from exposed edges.

B) Any component that is located in the front bulkhead area of the bus and not flush with the interior walls shall not:

i) interfere with passengers entering or exiting the bus;

ii) be located in the driver's head impact zone; nor

iii) obstruct any required lettering.

C) Flush mounted speakers are exempt from padding requirements.

dd) Rack, Book/Storage
Overhead book and/or storage racks are prohibited.

ee) Reflectors

1) Front

A) One yellow (amber) tinted reflector shall be present on the front of the body near the lower left and right hand corners of the vehicle. (See IVC Section 12-202.)

i) The front reflectors shall be located between 38.1 cm (15") and 1.52 m (60") above the roadway and at either the fender, cowl, or body and installed so as to mark the outer edge of the maximum width of the bus.

ii) No part of the required reflecting material shall be obscured by a lamp, mirror, bracket, or any other portion of the bus.

iii) No part of the required reflecting material shall be more than 30 cm (11.8") inboard of the outer edge of the nearest rub rail.

iv) The reflector may be any shape (e.g., square, rectangle, circle, oval, etc.). A rigid type reflex reflector may be any size if permanently marked either DOT, SAE A, or SAE J 594; otherwise, it shall display at least 45 cm^2 (7 in^2) of reflecting material (about 7.62 cm (3") diameter if a solid circle).

B) A sheet type (tape) reflex reflector that conforms to FMVSS 108 may be used but its forward projected reflecting area shall be at least 51.61 cm^2 (8 in^2).

2) Left Side. On buses over 6.10 m (20'), one yellow (amber) reflector no more than 30.48 cm (12") from the front and one red reflector no more than 30.48 cm (12") from the rear shall be present. The reflectors shall be mounted at a height not less than 38.1 cm (15") and not more than 1.52 m (60") above the surface of the road. (See IVC Section 12-202.) On buses 9.14 m (30') or more in length, one amber reflector located at or near the midpoint between the front and rear side reflectors shall also be present. (FMVSS 108 – Table 1) The reflectors shall measure a minimum of 7.62 cm (3") in diameter.

3) Right Side. On buses over 6.10 m (20'), one yellow (amber) reflector located no more than 30.48 cm (12") from the front and one red reflector

located no more than 30.48 cm (12") from the rear shall be present. The reflectors shall be mounted at a height not less than 38.1 cm (15") and not more than 1.52 m (60") above the surface of the road. (See IVC Section 12-202.) On buses 9.14 m (30') or more in length, one amber reflector located at or near the midpoint between the front and rear side reflectors shall also be present. (FMVSS 108 – Table 1) The reflectors shall measure a minimum of 7.62 cm (3") in diameter.

4) Rear. *Two red reflectors on the rear of the body not more than 12 inches from the lower left and right hand corners shall be present.* (IVC Section 12-202) The reflectors shall measure a minimum of 7.62 cm (3") in diameter.

ff) Rub Rails

1) Type I and Type I-A school buses shall meet the following:

A) A minimum of two rub rails are required. Both rails shall be 10.16 cm (4") or more in width in their finished form. The rub rails shall be constructed of 16-gauge steel, or suitable material of equivalent strength, and shall be constructed in corrugated or ribbed fashion. The rails shall be securely fastened to the body by bolts, rivets, or welding.

B) There shall be one rub rail located approximately at seat level that shall extend from the rear of the service entrance completely around the exterior of the bus' body without interruption to a point of curvature near the front of the body on the left side. Exception: Rub rails are not required at areas on the bus where no interior designated seating positions are located.

C) There shall be one rub rail on each side located approximately at floor line that shall extend over the same longitudinal distance as the rub rail required under subsection (ff)(1)(B), except:

i) This rub rail need not extend across a wheel housing; and

ii) This rub rail may terminate at the radii of the right and left rear corners of the body.

D) Optional: More than two rub rails may be installed on a side and/or the rear of a bus.

2) Type II school buses shall meet the following:

A) A minimum of one rub rail is required. The rub rail shall be 10.16 cm (4") or more in width in its finished form. The rail shall be constructed of 16-gauge steel or suitable material of equivalent strength and shall be constructed in a corrugated or ribbed fashion. The rail shall be securely fastened to the body by bolts, rivets, or welding.

B) The rub rail shall be located approximately at seat level and shall extend from the rear of the entrance door on both sides to a point of curvature at the rear of the body. Exception: Rub rails are not required at areas on the bus where no interior designated seating positions are located.

C) Optional: More than one rub rail may be installed on a side and/or the rear of a bus.

gg) Rust/Corrosion Inhibitor

1) The underside of the body, including the floor members and the side panels below the floor, shall be coated with a fire-resistant rust inhibiting compound so as to seal, insulate, reduce corrosion, and reduce interior noise.

2) The entire underside of front fenders or wheel wells shall be coated with a fire-resistant rust inhibiting compound in order to seal joints and to reduce corrosion and noise.

3) Nonmetallic components are exempt from coating.

hh) Seat, Driver's

The driver's seat shall be rigidly positioned and have a forward and backward adjustment without the use of tools or other nonattached devices. Seat cushions shall be securely fastened to the seat frame.

ii) Seat Belt, Driver's

1) Buses shall be equipped with a lap and shoulder harness seat belt for the driver.

2) Optional: Buses may be equipped with a durable seat belt webbing cutter with a full-width handgrip and a protected, replaceable, or noncorrodible blade. The webbing cutter shall not be mounted on the dash but shall be mounted in a location accessible to the seated driver in an easily detachable manner.

jj) Seats, Passenger

1) Each passenger seat shall conform to FMVSS 222.

2) A flip-up seat may be located only immediately adjacent to any side emergency door on a Type I school bus. If so equipped, the flip-up seat shall conform to the following:

A) The seat shall be designed so that, when in the folded position, the seat cushion is flat against the seat back to prevent a child's limb from becoming lodged between the seat cushion and seat back.

B) The seat shall be designed to discourage a child from standing on the seat cushion when in the folded position.

C) The working mechanism under the seat shall be covered to eliminate any tripping hazard.

D) All sharp metal edges on the seat shall be padded to prevent any snagging hazard.

E) No portion of the door latch mechanism can be obstructed by a seat.

F) There shall be at least 30.48 cm (12") measured from the door opening to the seat back in front.

kk) Service Entrance Door and Area

1) The service entrance door shall be located on the right side near the front, in unobstructed and convenient view of the driver. The service entrance door shall have a minimum vertical opening of 1.7 m (67") and a minimum horizontal opening of 61 cm (24").

2) A steel handrail that measures not less than 25.4 cm (10") in length shall be firmly attached in an unobstructed location on the left side of the entranceway as a person enters the bus. An optional handrail can also be located on the right side of the entranceway.

3) The bottom step in the entranceway shall not extend beyond the exterior of the body. With all seats empty, the bottom step shall be not less than 30 cm (11.8") and not more than 40 cm (15.7") from the roadway. At least two steps shall be provided. The steps shall be enclosed. Risers shall be approximately equal. Each step, including the floor at the top riser, shall be surfaced with a nonskid material with a 4 cm (1.6") to 8 cm (3.1") white or yellow nosing as an integral piece.

4) The service door shall be either manually or power operated by the seated driver. When in the closed and secured position, the door operating mechanism shall prevent accidental opening but shall afford prompt release and opening by the driver. Exposed parts of a door operating mechanism shall come together so as to prevent injury. The vertical closing edges of a service door shall be padded to lessen chance of injury.

5) A power operated door shall be equipped for emergency manual operation in case of power failure. Instructions for emergency operation of a power operated door shall be affixed permanently within 16 cm (6") of the release mechanism in letters at least 12 mm (.5") high.

6) A single-section service door shall be hinged at the front of the service entrance.

7) Glazed panels shall be installed in the service door to afford the driver a view of small children outside the door, traffic signs, and intersecting roadways. The bottom of each lower glass panel shall be not more than 25.4 cm (10") from the top surface of the bottom step. The top of each

upper glass panel when viewed from the interior shall be not more than 7.62 cm (3") below the interior door control cover or header pad.

8) Service Door Lock (Optional)
If ordered by the purchaser, a lock may be installed on or at the service door. Any type service door locking system installed in the bus shall conform to at least one of the following requirements:

A) Requirement 1: A locking system shall not be capable of preventing the driver from easily and quickly opening the service door;

B) Requirement 2: A locking system that is capable of preventing the driver from easily and quickly opening the service door shall include an audible and visible alarm to alert the driver when the engine is running and the service door is locked. No alarm disconnect, "squelch control", or other alarm defeating or attenuating device shall be installed; or

C) Requirement 3: A locking system shall not be capable of preventing the driver from easily and quickly opening the service door except when, and only when, a person outside the bus uses a key that is not capable of locking more than one of at least 1,000 of the door manufacturer's key locking systems.

ll) Spare Tire (Optional)
Each spare tire and rim shall be mounted outside the passenger compartment.

mm) Stop Signal Arm Panel

1) A stop signal arm panel shall be installed on the left side of the bus that conforms to FMVSS 131. Strobe lamps are acceptable on stop signal arm panels.

2) For buses manufactured on or after January 2, 2018, a second stop signal arm panel that meets the requirements of FMVSS 131 shall be located on the left side of a school bus that measures 8.53 m (28') long or more from bumper to bumper. The second panel shall operate in conjunction with the

panel required in subsection (mm)(1) and be located adjacent to the rearmost window.

3) Optional: Additional stop signal arm panels may be installed on school buses that measure less than 8.53 m (28') long. Any optional second stop signal arm panel shall meet the requirements of FMVSS 131.

nn) Storage Compartments (Optional)

1) A fire extinguisher, first-aid kit, warning devices, or other items may be stored in an interior, unlocked storage compartment. There shall be no locking mechanism on the storage compartment. (See subsection (y)(20) for labeling requirements.)

2) An exterior, fire resistant storage compartment of adequate strength and capacity used for the storage of miscellaneous items and equipment may also be provided. The compartment shall provide reasonable security for its contents.

3) If an interior storage compartment is located under a passenger seat, seat cushions alone shall not serve as the cover for the compartment. The compartment shall not extend into the aisle or seating area.

oo) Sun Visor

1) An interior, adjustable, transparent, tinted sun visor that measures not less than 15.24 cm (6") high by 76.26 cm (30") wide shall be so installed that it can be turned up and will remain up when not in use.

2) The visor may be supported so that it can be moved for use on the driver's left, but when used in front of the driver and in a position approximately parallel to the windshield, it shall be supported at or near each of its ends so as to minimize its vibration.

3) Exception: For Type II and Type I-A school buses, the sun visor may meet manufacturer's specifications.

pp) Tow Hooks, Front and Rear (Optional)

1) Front
A front tow hook may not extend beyond the front of the front bumper. Each front tow hook not fastened securely to the chassis frame shall be connected to the frame by suitable braces.

2) Rear
A rear tow hook may be attached or braced to the chassis frame or to an equivalent structural member of an integral type bus. A tow hook shall not extend beyond the rear face of the rear bumper.

qq) Ventilation

1) The body shall be equipped with a controlled ventilation system of sufficient capacity to maintain a satisfactory ratio of outside to inside air under cool and cold operating conditions without opening windows.

2) If the ventilation system is powered, air outlet openings shall be located, sized, and manufactured so that, with doors and windows closed, a positive pressure is maintained in the driver and passenger spaces to lessen chances of dangerous gas entering those spaces.

3) Fresh air inlets shall be located so as to minimize the entrance of either dangerous engine gas or obnoxious engine fumes.

rr) Warning Devices
Warning devices shall consist of (at a minimum):

1) 3 liquid-burning flares or 3 red electric lanterns or 3 portable red emergency reflectors that meet FMVSS 125;

2) 3 red burning 15 minute fusees. (If red electric lanterns or portable red reflectors are used, fusees are not required.); and

3) 2 red cloth flags or 2 portable red emergency reflectors that conform to FMVSS 125 (in addition to the 3 portable emergency reflectors). (See IVC Section 12-702(a).)

AGENCY NOTE: The bus purchaser may elect to install the warning devices after the bus is purchased.

ss) Windows

1) General

A) All window glazing shall meet the requirements of FMVSS 205.

B) Laminated safety glass is optional.

2) Rear

A) Fixed windows shall be installed in the rear of the bus to provide the seated driver a view through the rear of the bus as wide and as high as practicable. Rear emergency exit windows are not fixed.

B) The rear emergency door shall have an additional lower glazed panel to provide the driver an additional view of at least the width of the required aisle and as low and as high as practicable.

3) Side

A) Subsection (ss)(3) does not apply to a window or glazed panel installed forward of a front passenger seat. Subsection (ss)(3) does not apply to a window installed in a special service or side emergency exit door.

B) All side windows shall open from the top only and shall operate freely.

C) There shall be one window that opens vertically for each seat.

D) The window latches shall be recessed.

tt) Wiring

1) All wiring for lamps and other electrical devices shall be as recommended for automobiles, motor coaches, and heavy duty starting motor circuits in SAESP J1292 (Revised January 2008) and in other practices or standards referenced in J1292, unless preempted by FMVSS.

2) Alternately flashing signal lamps and stop signal arm panel lamps shall have independent circuits.

3) Wires not enclosed within the body shall be fastened securely at intervals of not more than 45.72 cm (18").

4) A noise suppression switch that is capable of turning off noise producing accessories, including, but not limited to, heater blowers, defroster fans, auxiliary fans and radios, shall be provided. Exception: Two-way radios and emergency exit alarms are exempt from the noise suppression switch. (See IVC Section 12-815.2.)

DEPARTMENT OF TRANSPORTATION

NOTICE OF PROPOSED REPEALER

1) Heading of the Part: Minimum Safety Standards for Construction of Type I School Buses

2) Code Citation: 92 Ill. Adm. Code 440

3)

Section Numbers:	Proposed Actions:
440.10	Repealed
440.20	Repealed
440.30	Repealed
440.110	Repealed
440.120	Repealed
440.130	Repealed
440.140	Repealed
440.150	Repealed
440.160	Repealed
440.205	Repealed
440.210	Repealed
440.220	Repealed
440.305	Repealed
440.310	Repealed
440.320	Repealed
440.405	Repealed
440.420	Repealed
440.505	Repealed
440.520	Repealed
440.ILLUSTRATION B	Repealed
440.ILLUSTRATION C	Repealed

4) Statutory Authority: Implementing Article VIII of Chapter 12 of the Illinois Vehicle Code [625 ILCS 5/Ch. 12, Art. VIII] and Section 14-3(m) of the Criminal Code of 1961 [720 ILCS 5/14-3(m)] and authorized by Section 12-812 of the Illinois Vehicle Code [625 ILCS 5/12-812].

5) A Complete Description of the Subjects and Issues Involved: This Part consists of the construction standards for type I school buses manufactured for use in Illinois. The Department is proposing to repeal this entire part and simultaneously recreate the Part with new Section numbers in an attempt to reorganize the rules and to incorporate 92 Ill. Adm. Code 442. The new Part will have additional changes that will be detailed in the Notice of Proposed Rules filed in conjunction with this Notice.

DEPARTMENT OF TRANSPORTATION

NOTICE OF PROPOSED REPEALER

6) Published studies or reports, and sources of underlying data, used to compose this rulemaking: None

7) Will this rulemaking replace any emergency rule currently in effect? No

8) Does this rulemaking contain an automatic repeal date? No

9) Does this rulemaking contain incorporations by reference? Yes

10) Are there any other rulemakings pending on this Part? Yes. Part 440 is being repealed and new rules will be proposed simultaneously through another rulemaking.

11) Statement of Statewide Policy Objective: These proposed amendments affect units of local government (i.e., school districts) that own or operate school buses.

12) Time, Place and Manner in which interested persons may comment on this proposed rulemaking: Any interested party may submit written comments or arguments concerning these proposed amendments. Written submissions shall be filed with:

Greg Stucka, Rules Manager
Illinois Department of Transportation
Office of Chief Counsel
2300 South Dirksen Parkway, Room 317
Springfield IL 62764

Comments received within 45 days after the date of publication of this *Illinois Register* will be considered. Comments received after that time will be considered, time permitting.

13) Initial Regulatory Flexibility Analysis:

A) Types of small businesses, small municipalities and not-for-profit corporations affected: These proposed amendments affect small businesses that manufacture school buses registered for use in Illinois. These proposed amendments also affect small businesses, small municipalities, and not-for-profit corporations that own or operate school buses.

DEPARTMENT OF TRANSPORTATION

NOTICE OF PROPOSED REPEALER

B) Reporting, bookkeeping or other procedures required for compliance: No impact is anticipated.

C) Types of professional skills necessary for compliance: No impact is anticipated.

14) Regulatory Agenda on which this rulemaking was summarized: July 2017

The full text of the Proposed Repealer begins on the next page:

DEPARTMENT OF TRANSPORTATION

NOTICE OF PROPOSED REPEALER

TITLE 92: TRANSPORTATION
CHAPTER I: DEPARTMENT OF TRANSPORTATION
SUBCHAPTER e: TRAFFIC SAFETY (EXCEPT HAZARDOUS MATERIALS)

PART 440
MINIMUM SAFETY STANDARDS FOR CONSTRUCTION
OF TYPE I SCHOOL BUSES (REPEALED)

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AUTHORITY: Implementing Article VIII of Chapter 12 of the Illinois Vehicle Code [625 ILCS 5/Ch. 12, Art. VIII] and Section 14-3(m) of the Criminal Code of 1961 [720 ILCS 5/14-3(m)] and authorized by Section 12-812 of the Illinois Vehicle Code [625 ILCS 5/12-812].

SOURCE: Filed June 20, 1977; amended at 6 Ill. Reg. 7147, effective June 2, 1982; codified at 8 Ill. Reg. 15502; amended at 11 Ill. Reg. 15947, effective September 21, 1987; amended at 12 Ill. Reg. 8463, effective May 3, 1988; amended at 16 Ill. Reg. 1655, effective January 14, 1992; amended at 17 Ill. Reg. 3530, effective March 2, 1993; amended at 18 Ill. Reg. 14764, effective September 20, 1994; amended at 22 Ill. Reg. 19354, effective October 15, 1998; expedited correction at 23 Ill. Reg. 5918, effective October 15, 1998; emergency amendment at 24 Ill. Reg. 4993, effective March 10, 2000, for a maximum of 150 days; amended at 24 Ill. Reg. 12111, effective July 31, 2000; emergency amendment at 24 Ill. Reg. 16391, effective October 20, 2000, for a maximum of 150 days; amended at 25 Ill. Reg. 3307, effective February 20, 2001; amended

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at 26 Ill. Reg. 3219, effective February 19, 2002; amended at 31 Ill. Reg. 1881, effective January 8, 2007; amended at 32 Ill. Reg. 17983, effective November 10, 2008; repealed at 41 Ill. Reg. _____, effective _____.

SUBPART A: INTRODUCTION

Section 440.10 Order

The Department, through its Division of Traffic Safety, has the responsibility to ensure that the public and private agencies engaged in the transportation of passengers on school buses are cognizant of and meet minimum safety standards related to vehicle construction.

Section 440.20 Guidelines

This Part provides:

a) General information on the appropriate portions of the Illinois Vehicle Code [625 ILCS 5], the applicability of the standards to public and private agencies, the purpose of the standards and the scope of the standards.

b) Definitions of terms used in this Part.

c) Requirements for manufacturer's certification related to federal and State standards.

d) Federal and State standards applicable to the bodies of school buses.

e) Federal and State standards applicable to the chassis of school buses.

Section 440.30 Responsibilities

The Bureau of Safety Programs, Division of Traffic Safety, is responsible for enforcement of these standards.

SUBPART B: GENERAL

Section 440.110 Purpose

These standards are intended to heighten the safety of school bus passengers in compliance with

the oft-expressed desires of parents and other promoters of school bus safety features.

Section 440.120 Scope

These standards show the basic federal motor vehicle safety standards that must be met and in addition set forth certain minimum requirements established by the State to govern aspects not governed by the federal motor vehicle safety standards. In compliance with the desires of school bus owners and operators, some of the State requirements relate to bus traffic characteristics and to durability and maintenance rather than to safety.

Section 440.130 Applicability

These standards apply to the construction of any new Type I School Bus obtained by a person or organization for operation on the public roads in Illinois. Requirements for body and chassis are stated separately, in order to facilitate application of the standards to the commonly used body-on-chassis bus. In the case of an integral type bus the body and chassis requirements (Subpart E & F) should be read together as one set of requirements. In any case, these standards apply to the completed bus.

Section 440.140 Effective Date

These standards become effective July 1, 1977, on each incomplete vehicle manufactured on or after April 1, 1977, and on each component either assembled to or altered on such incomplete vehicle so as to construct a school bus; provided, however, a new school bus constructed of an incomplete vehicle manufactured before April 1, 1977, may not be sold or used in Illinois if its final stage of manufacture is completed after October 1, 1977.

Section 440.150 Quantified Requirements

Nearly all quantified requirements are stated in SI (metric) units as well as U.S. customary units. Where a requirement stated in U.S. customary units is not identical to the requirement stated in SI units, the SI requirement shall prevail.

Section 440.160 Incorporation by Reference

a) Each bus body and chassis must conform to the applicable provisions of the Federal Motor Vehicle Safety Standards (FMVSS) (49 CFR 571.1 through 571.404). Those applicable provisions of the FMVSS are incorporated by

reference as that part of the FMVSS was in effect on October 1, 2007. No later amendments to or editions of 49 CFR 571 are incorporated.

b) Each bus body and chassis must conform to the applicable provisions of 49 CFR 567, Certification, and 49 CFR 568, Vehicles Manufactured in Two or More Stages, that were in effect on the first day of the month in which the chassis manufacturer completed the last manufacturing operation on the incomplete bus. Those applicable provisions are incorporated by reference as they were in effect on October 1, 2007. No later amendments to or editions of 49 CFR 567 and 49 CFR 568 are incorporated.

c) Each school bus must conform to the applicable Standards and Recommended Practices of the Society of Automotive Engineers Handbook (Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale PA 15096-0001, (724)776-4841). Those applicable provisions of the SAE Standards and Recommended Practices are incorporated by reference as of the 2005 edition date. No later amendments to or editions of the SAE Standards and Recommended Practices are incorporated.

d) Copies of the above materials incorporated by reference are available for inspection at the Division of Traffic Safety, 3215 Executive Park Drive, 3rd Floor, Springfield, Illinois 62703 or by calling (217)785-1181. The federal standards are available on the National Archives and Records Administration's website at http://ecfr.gpoaccess.gov. The Division of Traffic Safety's rules are available on the Department's website at http://www.dot.il.gov/safety.html.

SUBPART C: DEFINITIONS

Section 440.205 Dictionary Used

Words and terms are used in the appropriate meaning defined in Webster's Third New International Dictionary of the English Language unless a different meaning is referred to or stated herein below.

Section 440.210 Federal Definitions

Terms are used as defined in 49 CFR 567, 568, or 571.

Section 440.220 State Definitions

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The terms referred to in Section 440.210 are applicable to this Section unless any definitions are displaced either by a statutory definition in 625 ILCS 5 or by a definition found in this Section:

"ANSI" means the American National Standards Institute (11 West 42nd Street, New York NY 10036).

"Body" means the portion of a bus that encloses the occupant and cargo spaces and separates those spaces from the chassis frame, engine compartment, driveline, and other chassis components, except certain chassis controls used by the driver.

"Body-on-Chassis" means a completed vehicle consisting of a passenger seating body mounted on a truck type chassis (or other separate chassis) so that the body and chassis are separate entities, although one may reinforce or brace the other.

"Child Check System" means an optional mechanical or electronic monitoring system used for ensuring that no passengers remain on the school bus at the end of a route, a work shift, or the work day. The system shall require the school bus driver to walk to the rear of the bus to deactivate the system before the driver leaves the bus. The vehicle's interior lights must illuminate when the ignition is turned off to assist the driver in seeing in and under the seats during a visual sweep of the bus. (See P.A. 95-0260, effective August 17, 2007.)

"Code" means the Illinois Vehicle Code [625 ILCS 5].

"Driver" means *every person who drives or is in actual physical control of a vehicle*. (Section 1-116 of the Code)

"Empty Weight" means the unloaded vehicle weight; i.e., the weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle but without cargo or occupant (49 CFR 571.3), plus 350 lbs allowance for driver and equipment.

"FMVSS" means the Rules and Standards set forth in 49 CFR 571 and known as the Federal Motor Vehicle Safety Standards.

"Forward Control" means a configuration in which more than half of the engine length is rearward of the foremost point of the windshield base and the steering wheel hub is in the forward quarter of the vehicle length (49 CFR 571.3) −

includes mid-engine and rear-engine "pusher" buses.

"Gross Vehicle Weight Rating" or "GVWR" means the value specified by the manufacturer as the loaded weight of the school bus. (See Section 1-124.5 of the Code.)

"Incomplete Vehicle" means an assemblage consisting, as a minimum, of frame and chassis structure, power train, steering system, suspension system, and braking system, to the extent that those systems are to be part of the completed vehicle, that requires further manufacturing operations (other than the addition of readily attachable components such as mirrors or tire and rim assemblies or minor finishing operations, such as painting) to become a completed school bus for use in Illinois. (Based on 49 CFR 568.3)

"Integral Type" bus means a completed vehicle either without separate body and chassis or with body and chassis joined into one unit.

"m", following a numeral, means either "meter" or "meters."

"mm", following a numeral, means either "millimeter" or "millimeters."

"Manufacturer" (unless otherwise indicated at the point of use) means the person or organization whose name follows "MANUFACTURED BY" OR "MFD BY" on the label required in Section 440.310.

"Multiple Glazed Unit" means two or more sheets of safety glazing material separated by air spaces and assembled in a common mounting (ANSI Z26.1-1996).

"Passenger" means every bus occupant who is not the driver.

"SAE" means the Society of Automotive Engineers (400 Commonwealth Drive, Warrendale PA 15096).

"School Bus" –

> *Every motor vehicle, except as provided below, owned or operated by or for any of the following entities for the transportation of persons regularly enrolled as students in grade 12 or below in connection with any activity*

of such entity:

Any public or private primary or secondary school;

Any primary or secondary school operated by a religious institution; or

Any public, private or religious nursery school.

This definition shall not include the following:

A bus operated by a public utility, municipal corporation or common carrier authorized to conduct local or interurban transportation of passengers when such bus is not traveling a specific school bus route but is:

On a regularly scheduled route for the transportation of other fare paying passengers;

Furnishing charter service for the transportation of groups on field trips or other special trips or in connection with other special events; or

Being used for shuttle service between attendance centers or other educational facilities.

A motor vehicle of the first division.

A motor vehicle designed for the transportation of not less than 7 nor more than 16 persons that is operated by or for a public or private primary or secondary school, including any primary or secondary school operated by a religious institution, for the purpose of transporting not more than 15 students to and from interscholastic athletic or other interscholastic or school sponsored activities. (Section 1-182 of the Code)

"SI" means Systeme International d'Unites (International System of Units); officially abbreviated SI in all languages; the modernized metric system defined in ANSI IEEE-ASTM-SI-10-1997.

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The symbol ", following a numeral, means either "inch" or "inches."

"Type I School Bus" means *a school bus with a GVWR of more than 10,000 pounds.* (Section 1-213.4 of the Code)

"Type I-A School Bus" means a term commonly used by school bus manufacturers to classify a certain type of school bus that is a conversion or body constructed upon a van-type or cutaway front-section vehicle with a left side driver's door, designed for carrying more than 10 persons. The Type I-A school bus has a GVWR of more than 10,000 pounds.

"Type II School Bus" *means a school bus with a GVWR of 10,000 pounds or less.* (Section 1-213.5 of the Code)

SUBPART D: CERTIFICATION

Section 440.305 Certification by Manufacturer

The manufacturer shall certify the bus conforms to the applicable federal standards in effect on the first day of the month shown in the statement, "This Vehicle Conforms To All Applicable Federal Motor Vehicle Safety Standards In Effect in (month, year)" on the label required under Section 440.310. The manufacturer must also certify that the bus conforms to all applicable State standards. (See Section 440.320.) The certification shall be present in the bus when delivered to the purchaser as well as when submitted to the safety test conducted under provisions of Section 13-109 of the Code [625 ILCS 5/13-109].

Section 440.310 Federal Standards

The manufacturer, and all incomplete vehicle and intermediate manufacturers, shall comply with the applicable provisions of Part 567, "Certification", and Part 568, "Vehicles Manufactured in Two or More Stages", in Title 49 of the Code of Federal Regulations (49 CFR 567 & 568), including the permanent affixing of a label in conformance with the above mentioned federal regulations. This label shall constitute the manufacturer's certification to the People of the State of Illinois that the bus conforms to all applicable provisions of the Federal Motor Vehicle Safety Standards (49 CFR 571).

Section 440.320 State Standards

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The manufacturer shall prepare a certification bearing his name, identifying the bus by Vehicle Identification Number (VIN), and stating the bus conforms to all applicable provisions of "Illinois Minimum Safety Standards For Construction of Type I School Buses" in effect on the first day of (month and year appearing in the statement quoted in Section 440.305, above or a later month). This certification shall be in the form of an additional label manufactured, lettered, and affixed in the same manner and location as the label required in Section 440.310, above.

SUBPART E: BODY REQUIREMENTS

Section 440.405 Conformance to the Requirements

At the time of the safety test conducted under provisions of Section 13-109 of the Code [625 ILCS 5/13-109], and when delivered to the purchaser, the body of each Type I School Bus shall conform to the requirements stated or referred to in this Subpart. Some chassis requirements also applicable to the body are stated or referred to herein.

Section 440.410 Incorporation by Reference of Federal Motor Vehicle Safety Standards (Repealed)

Section 440.420 State Requirements

Except for mirrors, which may project 153 mm (6") beyond each side of the bus, a school bus shall not exceed 2.44 m (8 feet) in width, 4.12 m (13 feet 6 inches) in height, nor 12.81 m (42 feet) in length. (Sections 15-102, 15-103 and 15-107 of the Code) Each bus body shall be constructed so as to preclude road splash, road dust, or the bus engine's fumes or gas entering either the driver, passenger, or service entrance space through any joint, crack, hole, or opening other than an opened door or window. In addition, various portions of the bus body shall conform to the requirements set forth under the following subsections.

a) Aisle. An aisle, easily negotiated ("easily negotiated" means that an aisle meets the dimension requirements set forth in this subsection from front of bus to back of bus) and free of tripping hazards ("tripping hazards" are tears, wrinkles and other imperfections in the floor covering material, or the floor itself causing the walking surface to be uneven), shall extend from the forward edge of the service entrance stairway to the emergency door in the rear of the bus or, when such door is absent, to the forward edge of the rearmost seat. This aisle shall be no less than 305 mm (12") wide at every location between floor covering and the top of each seat cushion and, in a bus manufactured in July 1987 or later, shall be no less than 380 mm (15") wide at and above a level 50 mm (2") below the top of any seat

back. At least 1.75m (68.9") floor-to-ceiling height shall be provided above the entire required width of this aisle between the forward edge of the rearmost seat and the forward edge of the service entrance stairway. A dedicated aisle that conforms to 49 CFR 571.217 may be adjacent to any side emergency door.

b) Barriers, Guard. A restraining guard barrier shall be installed in front of the right and left front passenger seats. (See 92 Ill. Adm. Code 444 for exceptions for special education school buses.)

1) Barriers shall be constructed to guard passengers from being thrown into the stairwell, dash, windshield or driver's compartment. Barriers shall be padded to give knee and head impact protection. Barriers shall conform to S5.2 through S5.2.3 of FMVSS 222.

2) The vertical distance from the floor covering to the top of a barrier positioned in front of a student's seat shall measure not less than the vertical distance from the floor covering to the top of the seat back on the seat back installed behind that barrier.

c) Battery. Either one battery or two or more suitably connected batteries may be installed.

1) When rated in conformance with SAE Standard J537 (September 2000) the batteries shall provide a current flow for engine cranking no less than the engine manufacturer's recommended Cold Cranking Current (amperes for 30 seconds) at -18˚ C (0˚ F) or, at the purchaser's option, at -29˚ C (-20˚ F).

2) When rated in conformance with SAE Standard J537 (September 2000) the batteries shall provide a Reserve Capacity (duration of 25 ampere current flow) at 27˚ C (80˚ F) no less than 135 minutes.

d) Battery Carrier. When the battery is mounted outside the engine compartment it shall be attached securely in a closed, weather-tight, and vented compartment that is located and arranged so as to provide for convenient routine servicing. The battery compartment door, or cover, shall be secured by an adequate manually operated latches or other fasteners. Each electrical cable connecting the batteries in this carrier to the body or chassis shall be one-piece between the battery terminal connector and the first body or chassis terminal connector.

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e) Bumper, Rear. The rear bumper shall be of channel type cross section with the top edge at least 225 mm (8.9") above the bottom edge, shall be formed from rolled steel at least 4.55 mm (.18") thick, and shall wrap around the rear corners of the body to a point at least 300 mm (11.8") forward of the rearmost point of the body at floor line. The rear bumper shall be attached to the chassis frame with provisions for removal by means of commonly available hand tools and the prevention of hitching-to or riding thereon. The rear bumper shall be of sufficient strength to permit the bus being pushed by another vehicle without permanent distortion.

f) Capacity, Passenger. *The vehicle maximum passenger capacity recommended by the manufacturer of the bus shall be based upon a provision for 13 inches of seating space for each passenger, exclusive of the driver.* (Section 12-802 of the Code) Examples: A seat 990 mm (39") in width provides 3 passenger spaces; A seat 985 mm (38.8") in width provides 2 passenger spaces; A device resembling a seat but less than 330 mm (13") in width would not provide a passenger space. Neither a space not conforming to FMVSS 222 nor the driver's space shall be counted as a passenger space. However, any space used for transporting an orthopedically challenged passenger shall be counted as a passenger space when computing passenger capacity to be displayed on the exterior of the bus as required in subsection (v)(7).

g) Certificate and Registration Card Holder. At least 1 card holder with a transparent face no less than 150 mm by 100 mm (5.9" by 3.9") shall be securely affixed to the interior header panel out of the students' easy reach.

h) Child Check System (Optional). If a mechanical or electronic child check system is installed, the system must illuminate the interior lights on the bus when the ignition is turned off. (See P.A. 95-0260, effective August 17, 2007.)

i) Color and Paint, Exterior. *The exterior of each school bus shall be national school bus glossy yellow except* as indicated in subsections (i)(1)-(6):

1) *The rooftop may be white.* Optional white roof shall terminate at any point from top of drip rail to 6" above drip rail. The front and rear roof caps shall remain national school bus glossy yellow.

2) *Body trim, rub rails, lettering other than on a stop signal arm and*

bumpers shall be glossy black (Federal Standard No. 595a, glossy black enamel No. 170381).

3) *Lettering on a stop signal arm shall be white on a red background.*

4) *The hood and upper cowl may be lusterless black* (595a, 37038) *or lusterless school bus yellow.*

5) *Grilles on the front, lamp trim and hubcaps may be a bright finish.* Wheels and rims may be black or gray.

6) *The name or emblem of a manufacturer may be colorless or any color.*

7) *The exterior paint of any school bus shall match the central value, hue and chroma set forth* in this Part. (Section 12-801 of the Code)

8) Each opening for a required emergency exit window or door must be outlined around its exterior perimeter with, at a minimum, 1 inch (2.54 cm) wide yellow retroreflective tape. All retroreflective tape must be on the exterior surface of the bus and conform to all requirements of 49 CFR 571.217. Emergency roof exits may be outlined in either yellow or white retroreflective tape.

9) Yellow retroreflective tape can be located on the rear bumper or rub rail provided the space under the emergency exit door or emergency exit window is not adequate to accommodate the tape, or, provided rivets are present that prohibit the tape from being applied properly.

AGENCY NOTE: To be certain of glare reduction, a purchaser should specify a lusterless paint.

j) Crossing Control Arm:

1) Must meet or exceed the wiring requirements of SAE Recommended Practice J1133 (November 2004).

2) Must be capable of full operation between, and including, the temperatures -40º F and 160º F.

3) The arm, when activated, must extend a minimum of five feet from the front face of the bumper.

4) The arm must be mounted on the far right side (entry side) of the front bumper.

5) Appropriate brackets shall be used to attach the arm to the front bumper for proper operation and storage.

6) All component parts must meet or exceed any applicable federal motor vehicle safety standards in effect at the time of manufacture.

7) The arm must extend at the same time the stop arm panel extends. An independent "on/off" switch is prohibited.

8) If the driver can stop the arm from extending with the use of an optional override switch, the arm sequence must automatically reset once the service door is closed.

9) Red lights and/or red reflectors are prohibited.

k) Defrosters. Defrosting equipment shall be installed so as to help keep the window to the left of the driver and the glass in the service door clear of fog or frost. This defrosting equipment shall conform to those FMVSS 103 (49 CFR 571.103) performance requirements that are applicable to school bus windshields.

l) Emergency Exits. All emergency exits shall conform to the applicable requirements of FMVSS 217 (49 CFR 571.217).

1) Each emergency exit shall be equipped with an interior opening device that may be quickly released but that is designed to offer protection against accidental release. Each exterior release handle must be nonhitchable.

AGENCY NOTE: "Nonhitchable" is defined as the rear of the bus being designed and maintained to prevent or discourage riding or grasping rear of bus so as to "hitch" rides.

2) Each opening for a required emergency exit window or door must be

outlined around its exterior perimeter with, at a minimum, 1 inch (2.54 cm) wide yellow retroreflective tape. All retroreflective tape must be on the exterior surface of the bus and conform to all requirements of 49 CFR 571.217. Yellow retroreflective tape can be located on the rear bumper or rub rail provided the space under the emergency exit door or emergency exit window is not adequate to accommodate the tape, or, provided rivets are present that prohibit the tape from being applied properly. Emergency roof exits may be outlined in either yellow or white retroreflective tape.

3) Both audible and visible alarms shall alert the driver when the engine is running and any emergency exit door either:

A) Is not fully latched, or

B) Is locked and not readily operated manually.

4) An audible alarm shall alert the driver when the engine is running and any emergency exit window either:

A) Is not fully latched, or

B) Is locked and not readily operated manually.

5) The engine starting system shall not operate while any emergency exit door or window (optional or required) is locked from either inside or outside the bus. "Locked" means that the release mechanism cannot be activated and the exit cannot be opened by a person at the exit without a special device such as a key or special information such as a combination.

6) An alarm cut-off or "squelch" control is prohibited.

7) Exception: No alarm is required for roof hatches.

m) Fire Extinguisher.

AGENCY NOTE: A fire extinguisher is required to be carried on each school bus transporting pupils. The manufacturer may elect to install the fire extinguisher at the time the school bus is manufactured; however, a fire extinguisher can also be installed by the owner after the school bus is purchased.

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The fire extinguisher shall be of the dry chemical type, with pressure gauge, mounted in a quick-release bracket of automotive type located in view of and readily accessible to the driver, except when carried in the locked compartment authorized under subsection (w). The fire extinguisher shall be of a type approved by the Underwriters' Laboratories, Inc., with a rating not less than 10-BC. The operating mechanism shall be sealed with a type of seal that will not interfere with the use of the fire extinguisher. Halon fire extinguishers (10-BC) are approved.

n) First-Aid Kit.

AGENCY NOTE: A first aid kit is required to be carried on each school bus transporting pupils. The manufacturer may elect to install the first aid kit at the time the school bus is manufactured; however, a first aid kit can also be installed by the owner after the school bus is purchased.

1) The first aid kit must be readily identifiable and readily accessible to the driver. The kit must be dust tight and substantially constructed of durable material. If the kit is not carried in the locked compartment as authorized in subsection (w)(2), it must be in view of the driver.

2) The first aid kit must include, but is not limited to, the following:

A) 4" bandage compress – 2 packages

B) 2" bandage compress – 2 packages

C) 1" bandage or adhesive compress – 1 package

D) 40" triangle bandage with two safety pins – 1

E) Splint, wire or wood – 1

3) A tourniquet or any type of ointment, antiseptic or other medicine cannot be included.

o) Floor Covering.

1) All portions of the floor that come in contact with passengers' or driver's footwear shall be covered with a waterproof material. This floor covering shall not crack when subjected to sudden temperature change and shall be bonded securely to the floor with a waterproof substance. All seams and openings shall be filled with a waterproof sealer.

2) The floor covering in the aisles and entrance area shall be of non-skid, wear-resistance type material commonly used in commercial passenger transportation vehicles.

p) Fuel System. The fuel system shall conform to all applicable provisions of FMVSS 301 (49 CFR 571.301).

q) Glazing Materials.

1) The following applies to glazing on Type I school buses:

A) Laminated safety glass is optional on Type I school buses. All applicable provisions of FMVSS 205 (49 CFR 571.205) apply to the optional laminated safety glass and also to any plastic material used in multiple-glazed unit, including meeting the pertinent tests indicated below, that are specified in ANSI Standard Z26.1-1996, Z26.1a-1996, and are grouped in Table No. 1 of that Standard. Glazing shall be identified as shown below.

Glazing installed in:	Shall meet tests grouped in Z26.1 Table No. 1 under:	Shall bear one of the following identification markings:
Windshield	Item 1, either laminated glass or multiple glazed unit.	AS 1 Glass;
Window or door forward of rearmost location of driver's seat back		AS 1 Glass; or AS 2 Glass
All Other locations		AS 1 Glass, or AS 2

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Glass, or AS 3 Glass

B) In addition, any exposed plastic layer of a multiple glazed unit shall be identified in conformance with FMVSS 205 (49 CFR 571.205).

2) All glazing shall be installed so the identification markings are legible.

3) All glazing in the rear of the bus, except a rear emergency exit window, shall be the fixed type.

r) Heaters.

1) An interior temperature of not less than 10º Celsius (50º F) shall be maintained throughout the bus while the bus is moving at 75 kilometers per hour (46.6 miles per hour) in calm air at the average minimum January temperature, as established by the Weather Bureau, U.S. Department of Commerce, for the area in which the bus is to be operated.

2) Each heater shall bear a nameplate that shall identify the heater manufacturer and state the heater capacity rating when tested as recommended in SAE Recommended Practice J638 (November 1998), or when tested in accordance with other nationally recognized standard or code. The recommended practice, standard, or code under which the heater is rated shall be identified on the nameplate. Such nameplate shall constitute certification by the heater manufacturer that the heater performance is as shown on the plate.

3) Heater hoses shall be supported so as to prevent wear due to vibration. The hoses shall not dangle or rub against the chassis or sharp edges and shall neither interfere with nor restrict the operation of any engine function (such as an emission or ignition control mechanism). Heater hoses shall be protected or baffled between the point at which they enter the passenger compartment and the point of attachment to the heater so that, in the event of hose rupture or disconnection, passengers and/or driver will not be subject to hot water burns.

4) Auxiliary fuel-fired heating systems are permitted, provided they comply with the following:

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A) The auxiliary heating system fuel shall utilize the same type of fuel as specified for the vehicle engine;

B) The heater or heaters may be direct hot air or connected to the engine's coolant system;

C) An auxiliary heating system, when connected to the engine's coolant system, may be used to preheat the engine coolant or preheat and add supplementary heat to the bus's heating system;

D) Auxiliary heating systems must be installed pursuant to the manufacturer's recommendations and shall not direct exhaust in such a manner that will endanger bus passengers. The auxiliary heating system must not direct exhaust into any portion of the prohibited zone as shown in Illustration C of this Part;

E) Auxiliary heating systems that operate on diesel fuel shall be capable of operating on:

i) a hot water and/or combustion type heater; or

ii) if only one heater is used, a fresh-air or combination fresh-air and recirculation type heater; or

iii) blended diesel fuel without the need for system adjustment; and

F) The auxiliary heating system shall be low voltage.

s) Heater Hose Connections at Engine. Each heater hose connection to the engine shall include a shutoff valve located as close to the engine as practical. Such connection and valve shall not interfere with any engine function whether closed, partially open, or fully open, with heater hoses installed properly.

t) Interior.

1) Thermal and acoustic materials shall be installed in the ceiling and the sides of the body to reduce heat transfer and the interior noise level.

2) The passenger compartment of the bus, including the ceiling, shall be free of any visible or concealed projections likely to cause injury. Exposed lapped joints shall be connected and/or treated to reduce likelihood of injury from exposed edges. Materials or components in the passenger compartment located within 59 inches from the floor shall be free of any sharp corner or projections or shall be padded so as to make injury unlikely.

u) Lamps and Signals. Light Emitting Diode (LED) lamps that meet applicable FMVSS or SAE Standards or SAE Recommended Practices are acceptable.

1) Alternately Flashing Signal Lamps. Each bus shall be equipped with an eight lamp alternately flashing signal system that conforms to S5.1.4(b) of FMVSS 108 (49 CFR 571.108) and Section 12-805 of the Code. A separate circuit breaker and a master switch shall be provided for this signal system. When in its "off" position, this master switch shall prevent operation of the eight lamp system; shall prevent operation of any lamps mounted on the stop signal arm panel required under subsection (hh); and shall prevent operation of any electrically controlled mechanism that would cause the stop signal arm panel to extend. The controls for the eight lamp flashing signals, the stop signal arm panel, and the service entrance door shall be arranged so as to provide for the following sequence of operations while the engine is running:

A) Place the alternately flashing signal system master switch in its "off" position. Close and secure the service entrance door. Actuate the alternately flashing signal system hand or foot control. The alternately flashing signal lamps of either yellow (amber) or red color shall not go on.

B) With the master switch "off" and the hand or foot control actuated, open the service door. The alternately flashing signals of either color shall not go on and the stop signal arm panel shall not extend.

C) Deactivate the hand or foot control. Place the alternately flashing signal system master switch in its "on" position. Close and secure the service door. Then open the service door. The alternately flashing signal lamps of either color shall not go on and the stop

signal arm panel shall not extend.

D) Close and secure the service door. Actuate the alternately flashing signal system by hand or foot control. A yellow pilot lamp in the view of the driver and the yellow alternately flashing signals shall go on.

E) Desecure but do not open the service door. The yellow pilot and the yellow alternately flashing signals shall go off. A red pilot lamp in the view of the driver and the red alternately flashing signals shall go on. The stop signal arm panel shall extend.

F) Fully open the service door. The red pilot and red signals shall remain on and the stop arm shall remain extended.

G) Close but do not secure the service door. The red pilot and red signals shall remain on and the stop arm shall remain extended.

H) Open the service door. The red pilot and red signals shall remain on and the stop arm shall remain extended.

I) Close and secure the service door. The red pilot and red signals shall go off and the stop arm shall retract.

J) Open the service door. Alternately flashing signals of either color shall not go on and the stop arm shall not extend.

2) Interior Lighting. At least the white nosings of the service entrance steps (subsection (gg)(3)), the floor around the stepwell, the entire aisle, and each emergency door and emergency exit shall be illuminated by lamps emitting a white light. For buses designed to transport 33 or more passengers, at least two interior illumination lamps shall be installed. At least the nosings of the service entrance steps and the floor around the stepwell shall be illuminated automatically by opening of the service door. No lamp shall be installed at or near the eye level of a pupil moving through the service entranceway to the aisle unless such lamp does not shine directly into the eyes of any such pupil.

3) Rear Turn Signals. Yellow turn signal lamps shall be mounted on the rear

as far apart as practical and as high as practical but below the rear window. The effective projected illuminated area of these turn signal lamps shall be no less than required for the yellow alternately flashing signal lamps required under subsection (u)(1); i.e., .0122 m^2 (19 in^2).

4) Side Turn Signals. Two yellow side turn signal lamps conforming to SAE Standard J914 (July 2003) shall be installed on each bus designed to transport 33 or more passengers. Except as provided in this subsection, this SAE Standard shall be read as setting forth mandatory requirements. The lamps shall be "armored" and mounted on the body between the rub rails required under subsection (dd). The right lamp shall be within 1 m (39.4") of the rear of the service entrance but, on a forward control bus, not forward of the front axle. The left lamp shall be approximately the same distance from the front bumper as the right lamp.

5) Stop Signals. Red stop lamps shall be mounted on the rear as far apart as practical but closer to the vertical centerline of the bus than the rear turn signal lamps required under subsection (u)(3), and at the same height as those turn signal lamps. The effective projected illuminated area of these stop lamps shall be no less than required for the red alternately flashing signal lamps required under subsection (u)(1); i.e., .0122 m^2 (19 in^2).

6) Strobe.

A) *One per bus;*

B) *Shall emit white or bluish-white light;*

C) *Shall be visible from any direction;*

D) *Shall flash 60 to 120 times per minute;*

E) *Shall be visible in normal sunlight;*

F) *Mounted at or behind center of rooftop and equal distance from each side. Distance from rear will be calculated by measuring height of filament and multiplying same by 30 inches* (i.e., filament height measured from the base of the strobe x 30 = distance from rear of bus where lamp is to be located). (Section 12-815 of the

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Code)

G) If a roof exit, air conditioner, or the size of the bus interferes with the placement of a strobe as required by (u)(6)(F), the strobe can be placed to the rear of the roof exit or air conditioner as near as practicable above the rear axle, horizontally centered between the rear tires.

v) Lettering.

1) General. Except where otherwise required or allowed, lettering on the exterior of the body shall be black against a national school bus glossy yellow background. All required letters and numerals shall conform to Series "B", or heavier series, of the Standard Alphabets for Highway Signs issued by the Federal Highway Administration, Washington, D.C. 20591. Decals may be used instead of paint. Signs, numbers, or letterings, other than those either required by Section 12-802 of the Code or required or permitted by this Part shall not be affixed permanently on either the exterior or the interior of the bus. Interior lettering shall contrast with its background.

2) The words "SCHOOL BUS" shall be displayed against a national school bus glossy yellow background as high as practical and approximately centered on the front and rear of the bus body, in letters at least 200 mm (8") high (see Section 12-802 of the Code). These words may be painted on or applied to the bus body or displayed on a sign firmly attached to or built into the body. The background of an illuminated sign shall approximate the national school bus glossy yellow color as closely as feasible.

3) A school bus identification number, supplied by the purchaser, shall be displayed as high as practical on the front and rear of the bus in numerals not less than 100 mm (4") high. Such number may be displayed on the sides of the bus as specified by the purchaser. As an option, identification numbers may also be located on the rooftop.

4) *Either the owner's name or the school district number or both must be displayed on both sides of the bus at least four inches high, approximately centered and as high as practicable below the window line.* (Section 12-

802 of the Code) The lettering must be located on one line.

5) The body and/or chassis manufacturer's name, emblem, or other identification may be displayed, colorless or in any color, on any unglazed surface of the bus so as not to be mistaken for the name required in subsection (v)(4), and so as not to interfere with any required letters or numerals.

6) The words "EMPTY WEIGHT", or the abbreviation "EMPTY WT.", or the letters "E.W.", followed by the empty weight of the bus, as defined in Section 440.220, stated in pounds, shall be displayed on the exterior of the body near the rear edge of the service entrance in numerals and letters at least 50 mm (2") high (see Section 12-802 of the Code).

Examples: EMPTY WEIGHT 16,800 lb E.W. 16,800 lb

7) The word "CAPACITY", or the abbreviation "CAP.", and the rated passenger capacity (see subsection (f) of this Section) followed by the word "PASSENGERS", or the abbreviation "PASS.", shall be displayed on the exterior of the body near the rear edge of the service entranceway, and on the interior above the right portion of the windshield, in numerals and letters at least 50 mm (2") high (see Section 12-802 of the Code).

8) The words "NO STANDEES" shall be displayed only on the interior above the windshield, approximately opposite the aisle but to the right of the mirror and sun visor, in letters at least 50 mm (2") high.

9) The words "EMERGENCY DOOR" or "EMERGENCY EXIT" in letters at least 5 cm high must be displayed on the interior and exterior of the bus. "EMERGENCY DOOR" must be displayed at the top of, or directly above, any emergency exit door. "EMERGENCY EXIT" must be displayed at the top of, or directly above, or at the bottom of, any emergency exit window. They may be displayed on a separate colorless background (such as white, aluminum, or silver) that extends no more than 15 mm (.6") above or below the words and no more than 25 mm (1") to the right or left of the words.

10) A black arrow, curved or straight, at least 150 mm (5.9") in length and 15 mm (.6") in width, showing the direction each exterior emergency exit

release mechanism is to be moved to open the emergency exit, shall be painted or permanently affixed on the exterior yellow portion of the bus within 150 mm (5.9") of each release mechanism.

11) An arrow showing the direction each interior emergency exit release mechanism is to be moved to open the emergency exit shall be painted or permanently affixed on the interior of the bus within 150 mm (5.9") of each emergency exit release mechanism. Each interior arrow shall contrast with its background and, where suitable space is limited, may be smaller than the exterior arrows but must be conspicuous.

12) Alternate Fuel

A) *If the bus uses alternate fuel (e.g., propane, CNG), the vehicle must be marked with an identifying decal. Such decal shall be diamond shaped with white or silver scotchlite letters one inch in height and a stroke of the brush at least ¼ inch wide on a black background with a white or silver scotchlite border bearing either the words or letters:*

"PROPANE" = If propelled by liquefied petroleum gas other than liquefied natural gas; or

"CNG" = If propelled by compressed natural gas. The sign or decal shall be maintained in good legible condition.

B) *The alternate fuel decal shall be displayed near the rear bumper and visible from the rear of the vehicle.* (Section 12-704.3 of the Code)

13) The vehicle's length (rounded up to nearest whole foot) must be displayed on or adjacent to the interior bulkhead clearly within the driver's view. (For example: vehicle length of 39.1 feet will be displayed as 40 feet.) Each letter or numeral must be at least two inches high and black in color. The measurement must be taken from the front bumper to the rear bumper.

14) A "Stop Line" in contrasting color is required between 5.9 and 6.1 inches below the top of each side window opening. The line shall be located between each window that slides downward.

15) The decal described in this subsection (v)(15) is required to be displayed on every school bus registered in Illinois. The school bus manufacturer may elect to apply the decal at the time the school bus is manufactured or the decal may be applied by the school bus owner after the school bus is purchased. A white decal with black lettering and numerals that measure one inch high must be displayed on the rear of the bus. The decal must display the words TO REPORT ERRATIC DRIVING followed by the area code and phone number of the bus owner. The decal shall be located on the rear window glazing below the rear seat back, on the bus body below the window line, or on the rear bumper. The decal must be visible to the motoring public from the rear of the bus and cannot obstruct any required lettering or numerals. The decal cannot be located on any emergency door glazing or any emergency window glazing. Magnetic signs are not allowed. (See P.A. 95-0176, effective January 1, 2008.)

16) The decals described in this subsection (v)(16) are required to be displayed on every school bus registered in Illinois if an audio and/or visual recording will be made of the interior of the school bus. The school bus manufacturer may elect to apply the decals at the time the school bus is manufactured or the decals may be applied by the school bus owner after the school bus is purchased. Two white decals with black lettering measuring one inch high shall be displayed, one on the exterior of the service (e.g., entrance) door or on the bus body adjacent to the service door if the door is not adequate to accommodate the decal and a second on the front interior bulkhead. The decals shall serve as a notice of audio and/or visual recordings. The exterior decal must not be located on any service door glazing and the interior decal must not obstruct any other required lettering on the bulkhead. Magnetic signs are not allowed. (See P.A. 95-0352, effective August 23, 2007.)

w) Locked Compartment (Optional). If specified by the purchaser, a lockable compartment may be installed for storage of fire extinguisher, first-aid kit, warning devices, wheel chocks, or other items.

1) The compartment locking device shall be connected with an automatic audible and visible alarm that will alert the driver when the engine is running and the compartment is locked. No alarm disconnect, "squelch control", or other alarm defeating mechanism shall be installed.

2) A red cross, formed of five equal squares, and the words "FIRST-AID KIT" shall be displayed on the compartment door, or cover, if the first-aid kit is to be carried in the locked compartment.

3) The words "FIRE EXTINGUISHER" shall be displayed on the compartment door, or cover, if the fire extinguisher is to be carried in the locked compartment.

x) Metal Treatment.

1) Unless excluded below, all steel or iron used in construction of the bus body and attached equipment shall be either resistant to atmospheric corrosion, or zinc coated, or treated by equivalent process. Particular attention shall be given to each fastener or attaching device, lapped surface, welded connection or fastening, cut edge, punched or drilled hole, surface subjected to abrasion, closed or box section, and any unvented or undrained area or space. The number of unvented or undrained areas or spaces is to be minimized. Excluded are door handles, grab handles, and interior decorative parts.

2) As evidence that above requirements have been met, a sample of fastener, material, or section of body, coated or finished as installed in the bus, when subjected to a 1,000-hour salt spray test in accordance with American Society for Testing and Materials (ASTM) Standard B-117-1997 "Method of Salt Spray (Fog) Testing" shall not exhibit more than 10 percent reduction in weight after all adherent corrosion products are removed.

y) Mirrors.

1) Interior Mirror – A mirror that measures at least 6 inches x 30 inches overall shall be located inside the bus. The mirror shall afford the operator a good view of the bus interior and portions of the roadway to the rear. It shall be firmly supported, constructed of clear-view safety glass and securely backed and framed. It shall have rounded corners. Edges shall be padded to reduce danger of injury upon impact. Exception: For buses that meet the definition of a Type I-A school bus, as defined in Section 440.220, the interior mirror may meet manufacturer's specifications.

2) All exterior mirror systems shall conform to the applicable requirements of FMVSS 111 (49 CFR 571.111).

3) More convex mirrors than required above may be installed, if specified by the purchaser.

4) The reflecting surface on the backside of each mirror glass shall be protected from abrasion, scratching, and atmospheric corrosion.

z) Mounting of Body. This subsection does not apply to an integral type bus.

1) After the date of manufacture of the incomplete vehicle, the chassis frame shall not be altered so as to extend the wheelbase. Other extensions of the chassis frame may be accomplished only by the incomplete vehicle, intermediate, or final-stage manufacturer or by an agent of such manufacturer properly instructed and authorized by such manufacturer to make such extensions.

2) Insulating material shall be placed at all mounting points between the body and chassis frame. This material shall be at least 5 mm (.2") thick, may have the quality of the sidewall of an automobile tire, and shall be so secured that it will not move, vibrate, or "crawl" out of place during normal operations.

3) The body front shall be attached and sealed to the chassis cowl so as to prevent the entry of water, dust, or fumes through the joint between the chassis cowl and the body.

aa) Radio Noise. Radio/stereo speakers must be located at least four feet behind the rearmost position of the driver's seat.

AGENCY NOTE: Two-way communication radios are allowed.

bb) Rack, Book. Not permissible.

cc) Reflectors.

1) Front

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A) *Two yellow rigid or sheet type (tape) front reflex reflectors shall be attached securely and as far forward as practicable.* (Section 12-202 of the Code) They shall be located between 15 and 60 inches above the roadway at either fender, cowl, or body and installed so as to mark the outer edge of the maximum width of the bus. No part of the required reflecting material may be obscured by a lamp, mirror, bracket, or any other portion of the bus. No part of the required reflecting material may be more than 11.8 inches (300 mm) inboard of the outer edge of the nearest rub rail. The reflector may be any shape (e.g., square, rectangle, circle, oval, etc.). A rigid type reflex reflector may be any size if permanently marked either DOT, SAE A, or SAE J 594; otherwise, it shall display at least seven square inches of reflecting material (about three inch diameter if a solid circle).

B) A sheet type (tape) reflex reflector which conforms to FMVSS 108 (49 CFR 571.108 (S5.7.1.2)) may be used but its forward projected reflecting area shall be at least eight square inches.

2) Left Side. *One amber no more than 12 inches from the front and one red no more than 12 inches from the rear. Mounted at a height not less than 15 inches and not more than 60 inches above the surface of the road.* (Section 12-202 of the Code) On buses 20 feet or more in length, one amber reflector as near center as practicable must also be provided. The reflector must measure a minimum of three inches in diameter.

3) Right Side. *One amber no more than 12 inches from the front and one red no more than 12 inches from the rear. Mounted at a height not less than 15 inches and not more than 60 inches above the surface of the road.* (Section 12-202 of the Code) On buses 20 feet or more in length, one amber reflector as near center as practicable must also be provided. The reflector must measure a minimum of three inches in diameter.

4) Rear. *Two red reflectors on rear body within 12 inches of lower right and lower left corners.* (Section 12-202 of the Code) The reflectors must measure a minimum of three inches in diameter.

dd) Rub Rails.

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1) Each rub rail shall be 4" or more in width in its finished form, shall be constructed of 16-gauge steel or suitable material of equivalent strength and shall be constructed in corrugated or ribbed fashion.

2) There shall be one rub rail located approximately at seat level that shall extend from the rear of the service entrance completely around the exterior of the bus body without interruption, except at a rear emergency door or a rear compartment, to a point of curvature near the front of the body on the left side.

3) There shall be one rub rail on each side located approximately at floor line that shall extend over the same longitudinal distance as the rub rail required under subsection (dd)(2), except:

A) This rub rail need not extend across a wheel housing, and

B) This rub rail may terminate at the radii of the right and left rear corners of the body.

4) More than two rub rails may be installed on a side and/or the rear of a bus.

ee) Seating. Each seat and each barrier are required to conform to FMVSS 222 (49 CFR 571.222).

1) Seat, Driver's. The driver's seat shall be rigidly positioned, and shall afford both vertical and fore-and-aft adjustments of not less than 100 mm (3.9"), without the use of a tool or other non-attached device. The shortest distance between the steering wheel and the back rest of the operator's seat shall be no less than 280 mm (11").

2) Seats, Students'.

A) Each seat (except as provided in subsection (ee)(2)(E)) shall be constructed so that the shortest straight-line distance from the top of the seat back to the empty seat cushion is 28" when measured near the transverse center of the seat at the front of the seat back and along the angle of rearward inclination of the seat back. Since the height of a seat back is difficult to measure precisely on a

repeated basis, a measurement of 27.5" or more is deemed acceptable.

B) Each seat shall be forward facing (except as provided in subsection (ee)(2)(E)).

C) A flip-up seat may be located only immediately adjacent to any side emergency door. The flip-up seat must conform to the following:

i) The seat must be designed so that, when in the folded position, the seat cushion is flat against the seat back to prevent a child's limb from becoming lodged between the seat cushion and seat back.

ii) The seat must be designed to discourage a child from standing on the seat cushion when in the folded position.

iii) The working mechanism under the seat must be covered to eliminate any tripping hazard.

iv) All sharp metal edges on the seat must be padded to prevent any snagging hazard.

v) No portion of the door latch mechanism can be obstructed by a seat.

vi) There must be at least 11.7 inches (30 cm) measured from the door opening to the seat back in front.

D) Optional seat safety belts must be installed according to specifications provided by the bus body manufacturer. This may include reinforced seats and seat frames.

E) In the case of a seat to be occupied by a student with special needs, seating requirements shall be changed only as necessary to meet the needs of the student with special needs (e.g., seat missing to accommodate wheelchair, hard surfaced stretcher installed to accommodate child who is not capable of sitting in an upright

position) (see 92 Ill. Adm. Code 444).

ff) Safety Belt, Driver's.

1) Each driver's safety belt assembly shall be arranged so that all portions of the assembly remain above the floor when not in use. If retractors are installed, they shall be the emergency locking type.

2) Buses must be equipped with a lap belt/shoulder harness design for the driver.

gg) Service Entrance and Door.

1) The service entrance shall be located on the right side near the front, in unobstructed and convenient view of the driver. The service entrance shall have a minimum vertical opening of 1.7 m (67") and a minimum horizontal opening of 610 mm (24").

2) A steel grab handle not less than 250 mm (9.8") in length shall be firmly attached in an unobstructed location on the left side of the entranceway as a person enters the bus. An optional grab handle can also be located on the right side of the entranceway.

3) The bottom step in the entranceway shall not extend beyond the exterior of the body. With all seats empty, the bottom step shall be not less than 300 mm (11.8") and not more than 400 mm (15.7") from the roadway. At least two steps shall be provided. The steps shall be enclosed. Risers shall be approximately equal. Each step, including the floor at the top riser, shall be surfaced with a nonskid material with a 40 mm (1.6") to 80 mm (3.1") white nosing as an integral piece.

4) The service door shall be either manually or power operated by the seated driver. When in the closed and secured position, the door operating mechanism shall prevent accidental opening but shall afford prompt release and opening by the driver. No exposed parts of a door operating mechanism shall come together so as to shear or crush fingers. The vertical closing edges of a service door shall be padded to lessen chance of injury.

5) A power operated door shall be equipped for emergency manual operation in case of power failure. Instructions for emergency operation of a power operated door shall be affixed permanently on the interior of the door in letters at least 12 mm (.5") high.

6) A single-section service door shall be hinged at the front of the service entrance.

7) Glazed panels shall be installed in the service door to afford the driver a view of small children outside the door, traffic signs, and intersecting roadways. 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 each upper glass panel when viewed from the interior shall be not more than 3 inches below the interior door control cover or header pad.

8) Service Door Lock (Optional). If ordered by the purchaser, a lock may be installed on or at the service door. Any type service door locking system installed in the bus shall conform to at least one of the following requirements.

A) Requirement 1: A locking system shall not be capable of preventing the driver from easily and quickly opening the service door; or

B) Requirement 2: A locking system that is capable of preventing the driver from easily and quickly opening the service door shall include an audible and visible alarm to alert the driver when the engine is running and the service door is locked. No alarm disconnect, "squelch control", or other alarm defeating or attenuating device shall be installed; or

C) Requirement 3: A locking system shall not be capable of preventing the driver from easily and quickly opening the service door except when, and only when, a person outside the bus uses a key that is not capable of locking more than one of at least 1000 of the door manufacturer's key locking systems.

hh) Steering Wheel Clearance. The rim grip of the steering wheel shall have at least 50 mm (2") clearance in all directions, except at the spokes.

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ii) Steps, Body Front. On each side at the front of the body at least one grab handle and recessed foothold or folding stirrup step shall be installed so as to provide easy access to the windshield for cleaning purposes. Exception: Type I-A school buses are exempt.

jj) Stop Signal Arm Panel.

1) A stop signal arm panel must be installed on the left side of the bus that conforms to 49 CFR 571.131. Decals may be used in lieu of painting. Strobe lamps are acceptable on stop signal arm panels.

2) Section 440.Illustration B depicts the octagon shaped semaphore required in subsection (jj)(1).

3) Additional stop signal arm panels may be added at the purchaser's request. Additional panels must be located on the left side of the bus. Additional panels must operate in conjunction with the required panel and meet all stop arm panel requirements except as follows. The additional panel must not contain any marking or reflective material on the front side of the panel. The additional panel must be located in the rear half of the bus adjacent to the rearmost window.

kk) Storage Compartments (Optional).

1) If installed, the storage compartments shall be fire-resistant and of adequate strength and capacity for the storage of the items to be carried, such as tire chains, tow chains, tools for roadside or minor repairs, school activity equipment, etc. The compartments shall provide reasonable security for the contents and shall be constructed and installed so as to preclude passenger injury due to the compartments or the contents becoming dislodged when the bus is subjected to the maximum possible braking force and to minimize chances of such injury when the bus is subjected to a collision impact.

2) If a relatively small storage compartment is located inside the passenger compartment, seat cushions alone may not serve as the cover for the compartment.

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ll) Sun Visor. An interior, adjustable, transparent, tinted sun visor not less than 150 mm (5.9") high by 760 mm (29.9") wide shall be so installed that it can be turned up and will remain up when not in use. It may be supported so that it can be moved for use on the driver's left, but when used in front of the driver and in a position approximately parallel to the windshield it shall be supported at or near each of its ends so as to minimize its vibration. Exception: For school buses that meet the definition of a Type I-A school bus, as defined in Section 440.220, the sun visor may meet manufacturer's specifications.

mm) Tow Hook, Rear (Optional). Any tow hooks installed on the rear shall be attached or braced to the chassis frame, or to an equivalent structural member of an integral type bus. A tow hook may not extend beyond the rear face of the rear bumper.

nn) Undercoating. The underside of the body, including floor members and the side panels below the floor, shall be coated with a fire-resistant undercoating material applied by the spray method so as to seal, insulate, reduce corrosion, and reduce interior noise. Non-metallic components need not be coated.

oo) Ventilation. The body shall be equipped with a controlled ventilation system of sufficient capacity to maintain a satisfactory ratio of outside to inside air under cool and cold operating conditions without opening of windows. With a powered ventilation system, air outlet openings shall be located, sized, and manufactured so that, with doors and windows closed, a positive pressure is maintained in the driver and passenger spaces, to lessen chances of dangerous gas entering such spaces. Fresh air inlets shall be located so as to minimize entrance of either dangerous engine gas or obnoxious engine fumes.

pp) Warning Devices.

AGENCY NOTE: Warning devices are required to be carried on each school bus transporting pupils. The manufacturer may elect to install the warning devices at the time the school bus is manufactured; however, warning devices can also be installed by the owner after the school bus is purchased.

1) *Emergency warning devices are required to be carried on school buses weighing more than 8,000 pounds and operated upon any highway outside an urban district.* The warning devices must be securely stored. *The warning devices* required for use when lighted lamps are required (see

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Section 12-201(b) of the Code) *shall consist of:*

A) At least three liquid-burning flares and three red-burning 15-minute fusees; or

B) Three red electric lanterns; or

C) Three portable red emergency reflectors that meet FMVSS No. 125.

2) In addition, the following warning devices are also required for use when lighted lamps are not required (see Section 12-201(b) of the Code):

A) Two red cloth flags (not less than 12 inches square with standards to support flags); or

B) Two portable emergency reflectors that meet FMVSS No. 125. (The reflectors in subsection (pp)(1)(c) qualify for this option.) (See Section 12-702(a) and (c) of the Code.)

qq) Weight Distribution and Gross Weight. Storage or cargo spaces, if installed, and seats shall be located so that when the bus is fully loaded as specified or advertised by the manufacturer the loads exerted on the roadway will exceed neither a tire load rating, nor a gross axle weight rating, nor the gross vehicle weight rating indicated by the data displayed on the label permanently affixed in compliance with Section 440.310.

rr) Wheel Housings.

1) Each wheel housing opening shall allow for unimpeded wheel and tire service or removal.

2) Each rear wheel housing shall provide the clearance recommended in SAE Information Report J683 (August 1985) for installation and use of tire chains on the dual or single tires installed on the rear wheels.

ss) Windows or Glazed Panels, Rear. Glazed panels, or windows, shall be installed in the rear of the bus so as to afford the seated driver a reflected view through the rear of the bus as wide and as high as practical without unduly weakening or

increasing the cost of the body structure. Such view shall be as low as allowed by the backs of the rear seats except that, when the aisle required under subsection (a), extends to a rear emergency door, an additional lower glazed panel shall be installed to afford the driver an additional view through such panel at least the width of the required aisle and as low and high as practical.

tt) Window Openings, Side. This subsection does not apply to a window or glazed panel installed forward of a front passenger seat, and is optional for a window installed either beside a rear passenger seat, special service door, or in a side emergency exit.

1) All side windows shall open from the top only and shall operate freely.

2) There shall be one vertical opening side window for each seat.

3) Each side window shall provide an unobstructed emergency egress opening at least 9" high and 22" wide. The opening may extend to 18" above the unoccupied passenger seat cushion but no closer (to the seat cushion).

4) A stop line for the window opening shall be applied 6" from the top of the window opening.

5) The side windows may be split sash.

6) The window latches shall be recessed.

AGENCY NOTE: See Section 440.420(q) for glazing material requirements.

uu) Windshield.

1) The windshield shall be large enough to permit the operator to see the highway clearly, and shall be curved or slanted to reduce glare. The front cornerposts and other supports shall be shaped and located so as to cause as little obstruction to the driver's view of the highway as practical.

2) The windshield shall have a graduated glazing shade band across the top. The definition and boundary of this shade band shall be as recommended in SAE Recommended Practice J100 (November 1999).

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vv) Windshield Wipers. See the FMVSS for requirements (49 CFR 571.104).

ww) Windshield Washer. See the FMVSS for requirements (49 CFR 571.104).

xx) Wiring.

1) All wiring for lamps and other electrical devices shall be as recommended for automobiles, motor coaches, and heavy duty starting motor circuits in SAE Recommended Practices J1292 (October 1981) and J541a (October 1996) and in other practices or standards referenced therein, unless preempted by FMVSS. (See the FMVSS (49 CFR 571) for requirements.)

2) All circuits, except those for the alternately flashing signal lamps and the stop signal arm lamps, may be divided into independent circuits. Whenever feasible, all other electrical functions (sanders, windshield wipers, heaters, defrosters, etc.) shall be provided with independent and properly protected circuits.

3) Each body circuit shall be coded either by numerals and/or letters at approximately 100 mm (3.9") intervals, or by color and numerals and/or letters, or by colors only. The codes shall appear on a diagram of the circuits in a readily accessible location.

4) A separate fuse, circuit breaker, or electronic circuit protection shall be provided for all circuits, except that components of the engine starter and ignition circuits may be protected by other means.

5) Wires not enclosed within the body shall be fastened securely at intervals of not more than 460 mm (18.1").

6) All terminals and splice clips shall be accessible.

7) The chassis manufacturer shall install a readily accessible electrical terminal so that the net body and chassis electrical current flow can be indicated through a chassis ammeter without dismantling or disassembling the chassis component. The chassis wiring to this terminal shall have a current carrying capacity at least equal to the maximum generator output.

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8) All school buses manufactured on or after January 1, 2006 must be manufactured with a noise suppression switch that is capable of turning off noise producing accessories, including, but not limited to, heater blowers, defroster fans, auxiliary fans and radios. (See Section 12-815.2 of the Code.)

SUBPART F: CHASSIS REQUIREMENTS

Section 440.505 Conformance to the Requirements

At the time of the safety test conducted under provision of Section 13-109 of the Code, and when delivered to the purchaser, the chassis of each Type I School Bus shall conform to the requirements stated or referred to in this Subpart. Some body requirements also applicable to the chassis are repeated or referred to herein.

Section 440.510 Incorporation by Reference of Federal Motor Vehicle Safety Standards (Repealed)

Section 440.520 State Requirements

Except for mirrors, which may project 152 mm (6 inches), a school bus shall not exceed 2.625 m (8 feet) in width, 4.429 m (13 feet 6 inches) in height, nor 13.78 m (42 feet) in length (Sections 15-102 and 15-107 of the Code). Exceptions to the above are shown in Section 440.420 of this Part. Various portions of the bus chassis shall conform to the requirements set forth under the following subsections.

a) Air Cleaner.

1) A dry element type air cleaner shall be provided.

2) All diesel engine air filters shall include a latch-type restriction indicator that retains the maximum restriction developed during operation of the engine. The indicator should include a reset control so the indicator can be returned to zero when desired. Diesel-powered school buses that meet the definition of a Type I-A school bus, as defined in Section 440.220, are exempt from the restriction indicator requirement.

b) Axles. Must meet federal chassis requirements as indicated on the federal certification label as required by 49 CFR 567 and 49 CFR 568.

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c) Battery. See Section 440.420(c) of this Part.

d) Brakes. See the FMVSS for requirements (49 CFR 571.105).

e) Bumper, Front. The front bumper shall be of channel type cross section, shall be formed from rolled steel at least 4.5 mm (.177 inches) thick, shall have not less than a 200 mm (7.9 inches) vertical face, and shall extend to protect the outer edges of the fenders, or the body of a forward control bus. The bumper shall be of sufficient strength to permit pushing another vehicle of equal gross weight without permanent distortion. Exception: For school buses that meet the definition of a Type I-A school bus, as defined in Section 440.220, the bumper may meet manufacturer's specifications when the Type I-A school bus is equipped with a driver side air bag.

f) Clutch. A bus having a manual shift transmission shall be equipped with the type and size of clutch recommended by the incomplete vehicle manufacturer for heavy duty service between the engine and transmission installed in the bus.

g) Color and Paint. See Section 440.420(i) of this Part.

h) Drive Shaft. A suitable guard shall be provided for each segment of the drive shaft to prevent accident or injury if the shaft breaks or becomes disconnected.

i) Engine. Type and displacement may be specified by the purchaser.

j) Exhaust System.

1) The exhaust pipe, muffler and tail pipe shall be outside the bus body and attached to the chassis.

AGENCY NOTE: As mandated by the United States Environmental Protection Agency (USEPA), diesel-powered engines manufactured after December 31, 2006 are required to meet stricter standards that will reduce emissions of particulate matter and nitrogen oxides into the atmosphere. School bus manufacturers may be required to modify exhaust systems to meet the USEPA requirements, e.g., mufflers may be replaced with after-treatment devices that significantly reduce toxins released into the atmosphere. Modifications to exhaust systems made in compliance with

the USEPA requirements are acceptable provided they do not impact the safe operation of the school bus.

2) The exhaust system shall be insulated from any insulated wire, flammable material, brake hose or line, or fuel system component by a securely attached metal shield at any point where the exhaust system is 11.8 inches (300 mm) or less (four inches (101.6 mm) or less if diesel powered engine) from the components listed in this subsection (j)(2).

3) The tail pipe shall be extended to exit the exhaust gases either to the right or left side, or rear of the bus, except for prohibited zones as shown in Illustration C of this Part.

4) The tail pipe shall extend out to but not more than 1 inch (25.4 mm) beyond the perimeter of the body or the bumper.

5) The shielding of engine compartment components shall be governed by the chassis manufacturer's standards.

6) Each gas conducting component that is not of stainless steel shall be of commercial heat and corrosion resistant exhaust system material and shall be nonflexible.

7) For school buses that meet the definition of a Type I-A school bus, as defined in Section 440.220, the tail pipe may meet the chassis manufacturer's standard configuration. However, the tail pipe shall not exit beneath any fuel filler location or beneath any emergency exit door.

k) Frame. See Section 440.420(z)(1) of this Part.

l) Generating System. The generating system may utilize either mechanical rectification (commutator type) or diode rectification (alternator type).

1) The generator output shall be regulated automatically so as to provide for efficient battery charging without causing damaging potentials or currents in any part of the electrical system. Automatic means shall be provided to prevent battery discharge through the generator while the generator is not delivering current.

2) The generator in a nominal 12 volt system shall be able to deliver a continuous current of 60 amperes, or more, while its automatic regulating devices are connected and functioning properly and the engine is running no faster than the speed at which it delivers its maximum net torque at the engine flywheel.

3) The generator in a nominal 12 volt system shall be able to deliver a continuous current of 20 amperes, or more, while its automatic regulating devices are connected and functioning properly and the engine is running no faster than the curb idle speed recommended by the engine manufacturer.

4) The generator in a nominal voltage system higher or lower than 12 volts shall be able to deliver at least the same continuous power (watts) as indicated under subsections (l)(2) and(3) of this Section, at the engine speeds indicated therein.

AGENCY NOTE: Where a bus must operate under adverse conditions such as low engine speeds, frequent periods of engine idle, and/or with high electrical load (frequent use of signals and interior lamps, high heater/defroster loads, etc.) for prolonged periods of time, the purchaser should specify a larger generator commensurate with operating conditions.

m) Horns.

1) At least one horn shall be installed giving an audible warning at a distance of 200 feet. The horns shall be controlled conveniently by the seated driver and tested in accordance with SAE Standard J377 (March 2001).

2) A siren, whistle, or bell may not be installed to attract attention of pedestrians or drivers outside the bus (Section 12-601(b) of the Code). This prohibition shall not be interpreted to prohibit use of such devices inside the bus body to provide warnings to the bus driver.

n) Instruments. The bus shall be equipped with at least the following nonglare illuminated instruments and gauges mounted for easy maintenance and repair and in such a manner that each is clearly visible to the seated driver:

1) Ampere meter or volt meter, with "charge" and "discharge" indications,

provisions for 100 ampere, or more, continuous current indication, and arranged so as to remain unharmed by any ampere meter current flow resulting from the installed generator operating at its maximum output;

2) Gauge, Air Pressure or Vacuum (where air pressure or vacuum is utilized either to apply or to assist in applying the service brakes);

3) Gauge, Engine Coolant Temperature;

4) Gauge, Engine Oil Pressure;

5) Gauge, Fuel;

6) Odometer (may be combined with speedometer; may indicate kilometers traveled if such indication is shown, clearly and conspicuously);

7) Speedometer, with both miles per hour and kilometers per hour scales that are easily readable.

o) Lamps and Signals. See Section 440.420(u) of this Part.

p) Oil Filter. A "full flow" type engine oil filter of approximately 1 liter (1 quart) capacity shall be installed. The purchaser may specify additional "full flow" or "by-pass" type filters, or oil treatment devices.

q) Shock Absorbers. Two front and two rear double-acting shock absorbers of adequate capacity shall be installed.

r) Spare Tire (Optional). The spare tire and rim, if supplied, shall be of the same size designation and load rating as the largest tire and rim installed on the bus. Each spare tire and rim shall be suitably mounted in an accessible location outside the passenger compartment.

s) Springs and Suspension. Each spring and other component in any of the suspension systems shall be capable of supporting its share of the rated gross axle weight during normal operations. Where spring failure could result in total loss of control of the bus, suitable means shall be provided to make such total loss most unlikely.

t) Steering Mechanism. Power steering is optional. The steering mechanisms shall provide safe and accurate performance at maximum load and speed and shall be adjustable while installed on the completed bus. After the date of manufacture of the incomplete vehicle, the steering mechanisms shall not be modified unless such modification is done with the concurrence of the incomplete vehicle manufacturer and in accordance with the incomplete vehicle manufacturer's instructions.

u) Tow Hooks, Front (Optional). A front tow hook may not extend beyond the front of the front bumper. Each front tow hook not fastened securely to the chassis frame shall be connected to the frame by suitable braces.

v) Transmission. Unless otherwise specified by the purchaser, the transmission shall be manual-shift.

1) A manual-shift transmission shall provide not less than 4 forward gear ratios and 1 reverse gear ratio. A synchromesh shifting mechanism shall be provided for each forward gear ratio except for the highest ratio; i.e., "first gear" or "low gear". (Synchromesh may be specified for "first" or "reverse" gears at the purchaser's option.)

2) An automatic transmission may be specified by the purchaser. Such transmission shall provide not less than 3 forward gear ratios and 1 reverse gear ratio.

w) Undercoating. The entire underside of front fenders or wheel wells shall be coated with a fire-resistant undercoating material in order to seal joints and to reduce corrosion and noise. Nonmetallic components need not be coated.

x) Wiring. See Section 440.420(xx) of this Part.

Section 440.APPENDIX A Federal Motor Vehicle Safety Standards (FMVSS) and Related Regulations (Repealed)

Section 440.APPENDIX B First Aid Kit Requirements (Referred to in Section 440.420(l) (Repealed)

Section 440.APPENDIX C Specification Sheet Reflective Material -- Encapsulated Lens (Based on FHWA Notice N 5040.17, June 15, 1976) (Repealed)

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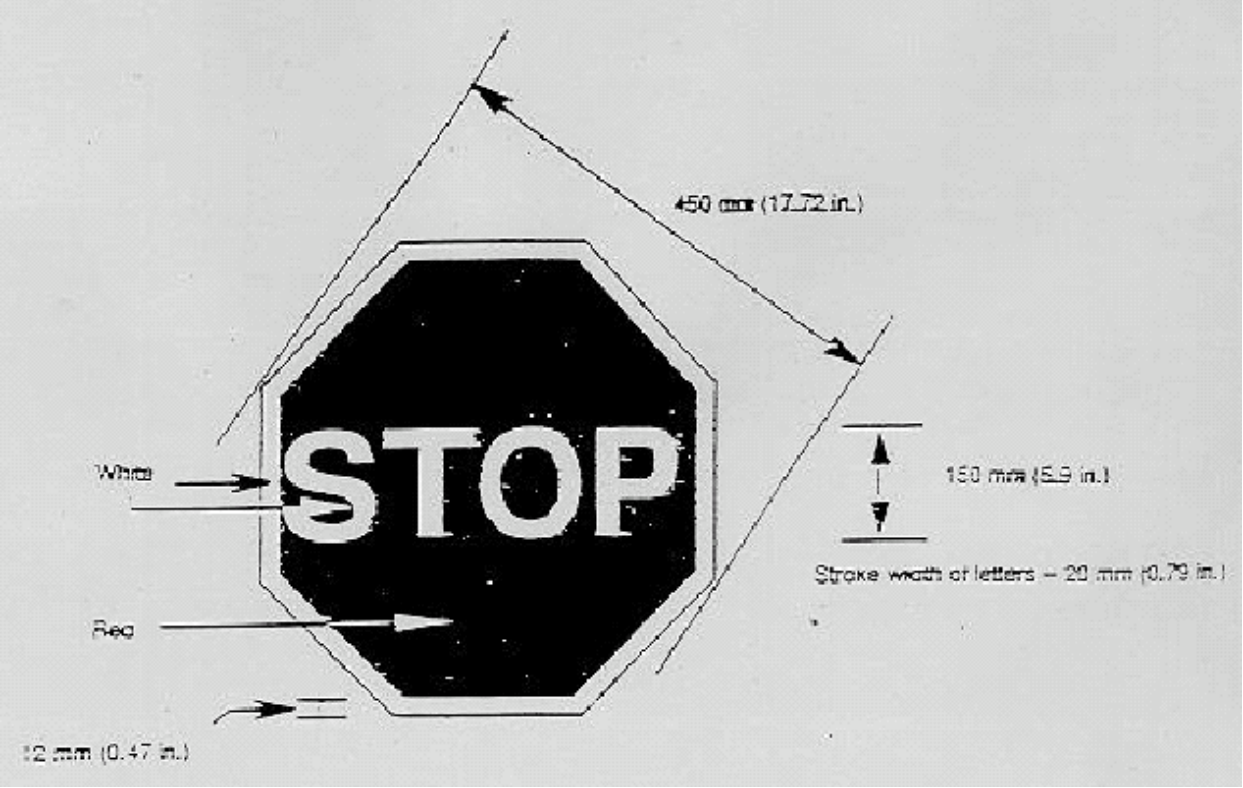
Section 440.ILLUSTRATION A Hexagon Shaped Stop Signal Arm (Repealed)

Section 440.ILLUSTRATION B Octagon Shaped Stop Signal Arm Panel



Section 440.ILLUSTRATION C Exhaust Discharge Prohibited Zones

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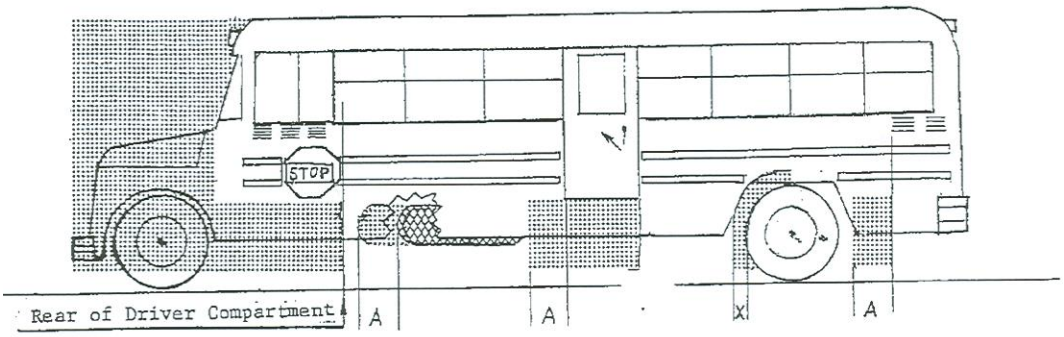
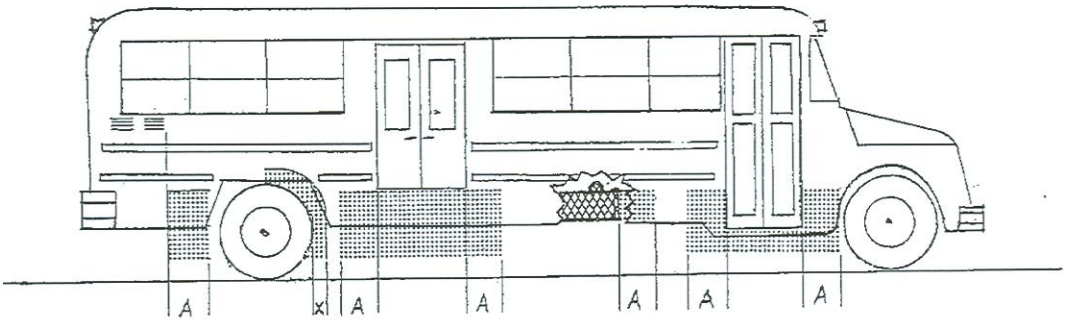
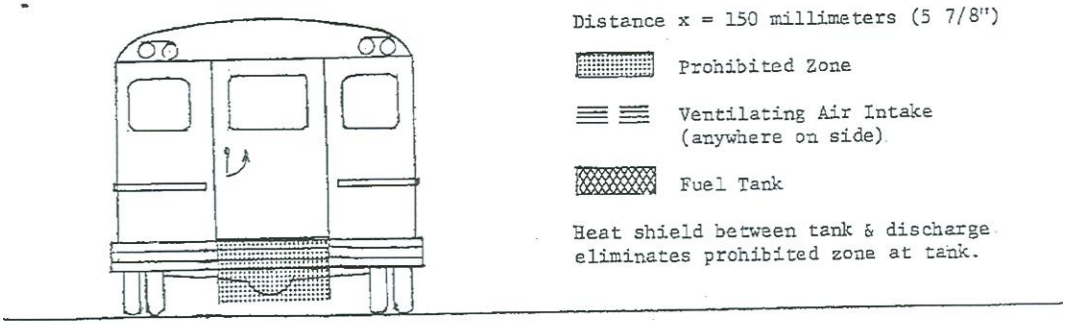


NOT TO SCALE





Distance A = 1 meter (39 3/8")

Distance x = 150 millimeters (5 7/8")

Prohibited Zone

Ventilating Air Intake (anywhere on side)

Fuel Tank

Heat shield between tank & discharge eliminates prohibited zone at tank.

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1) Heading of the Part: Minimum Safety Standards for Construction of Type II School Buses

2) Code Citation: 92 Ill. Adm. Code 442

3)

Section Numbers:	Proposed Actions:
442.110	Repealed
442.120	Repealed
442.130	Repealed
442.205	Repealed
442.208	Repealed
442.210	Repealed
442.213	Repealed
442.214	Repealed
442.215	Repealed
442.216	Repealed
442.218	Repealed
442.220	Repealed
442.230	Repealed
442.235	Repealed
442.240	Repealed
442.245	Repealed
442.250	Repealed
442.253	Repealed
442.255	Repealed
442.258	Repealed
442.259	Repealed
442.260	Repealed
442.265	Repealed
442.270	Repealed
442.275	Repealed
442.285	Repealed
442.290	Repealed
442.295	Repealed
442.300	Repealed
442.305	Repealed
442.310	Repealed
442.315	Repealed
442.320	Repealed

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442.325	Repealed
442.405	Repealed
442.410	Repealed
442.415	Repealed
442.420	Repealed
442.425	Repealed
442.430	Repealed
442.435	Repealed
442.440	Repealed
442.445	Repealed
442.450	Repealed
442.455	Repealed
442.460	Repealed
442.465	Repealed
442.470	Repealed
442.475	Repealed
442.480	Repealed
442.485	Repealed
442.490	Repealed
442.495	Repealed
442.605	Repealed
442.610	Repealed
442.615	Repealed
442.620	Repealed
442.705	Repealed
442.710	Repealed
442.715	Repealed
442.APPENDIX E	Repealed

4) Statutory Authority: Implementing Article VIII of Chapter 12 of the Illinois Vehicle Code [625 ILCS 5/Ch. 12, Art. VIII] and Section 14-3(m) of the Criminal Code of 1961 [720 ILCS 5/14-3(m)] and authorized by Section 12-812 of the Illinois Vehicle Code [625 ILCS 5/12-812].

5) A Complete Description of the Subjects and Issues Involved: This Part consists of the construction standards for type II school buses manufactured for use in Illinois. The Department is proposing to repeal this entire Part. In connection with this rulemaking, the Department is proposing to repeal and recreate 92 Ill. Adm. Code 440 to combine the construction standards of type I and type II buses into one Part.

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6) Published studies or reports, and sources of underlying data, used to compose this rulemaking: None

7) Will this rulemaking replace any emergency rule currently in effect? No

8) Does this rulemaking contain an automatic repeal date? No

9) Does this rulemaking contain incorporations by reference? Yes

10) Are there any other rulemakings pending on this Part? No

11) Statement of Statewide Policy Objective: This rulemaking affects units of local government (i.e., school districts) that own or operate school buses.

12) Time, Place and Manner in which interested persons may comment on this proposed rulemaking: Any interested party may submit written comments or arguments concerning these proposed amendments with:

Greg Stucka, Rules Manager
Illinois Department of Transportation
Office of Chief Counsel
2300 South Dirksen Parkway, Room 317
Springfield IL 62764

Comments received within 45 days after the date of publication of this *Illinois Register* will be considered. Comments received after that time will be considered, time permitting.

13) Initial Regulatory Flexibility Analysis:

A) Types of small businesses, small municipalities and not-for-profit corporations affected: These rulemakings affect small businesses that manufacture school buses registered for use in Illinois. These rulemakings also affect small businesses, small municipalities, and not-for-profit corporations that own or operate school buses.

B) Reporting, bookkeeping or other procedures required for compliance: No impact is anticipated.

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C) Types of professional skills necessary for compliance: No impact is anticipated.

14) Regulatory Agenda on which this rulemaking was summarized: July 2017

The full text of the Proposed Repealer begins on the next page:

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NOTICE OF PROPOSED REPEALER

TITLE 92: TRANSPORTATION
CHAPTER I: DEPARTMENT OF TRANSPORTATION
SUBCHAPTER e: TRAFFIC SAFETY (EXCEPT HAZARDOUS MATERIALS)

PART 442
MINIMUM SAFETY STANDARDS FOR CONSTRUCTION OF TYPE II SCHOOL BUSES (REPEALED)

SUBPART A: GENERAL

Section
442.110 Scope
442.120 Definitions
442.130 Incorporation by Reference and Certification

SUBPART B: CONSTRUCTION OF BODY

Section
442.205 Aisle
442.208 Barriers, Guard
442.210 Body Structure and Mounting
442.213 Bumper, Rear
442.214 Capacity, Passenger
442.215 Ceiling and Side Walls
442.216 Child Check System (Optional)
442.218 Crossing Control Arm
442.220 Defrosters
442.225 Doors (Repealed)
442.230 Emergency Exits and Door Alarms
442.235 Floor Covering
442.240 Glazing Materials
442.245 Heaters
442.250 Identification/Lettering
442.253 Metal Treatment
442.255 Mirrors
442.258 Paint/Color Requirements
442.259 Rack, Book/Luggage
442.260 Rub Rails
442.265 Seat Belts, Driver's and Passengers'

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SUBPART C: CHASSIS REQUIREMENTS

SUBPART D: ELECTRICAL SYSTEMS REQUIREMENTS

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AUTHORITY: Implementing Article VIII of Chapter 12 of the Illinois Vehicle Code [625 ILCS 5/Ch. 12, Art. VIII] and Section 14-3(m) of the Criminal Code of 1961 [720 ILCS 5/14-3(m)] and authorized by Section 12-812 of the Illinois Vehicle Code [625 ILCS 5/12-812].

SOURCE: Adopted at 2 Ill. Reg. 45, p. 115, effective November 10, 1978; codified at 8 Ill. Reg. 15002; amended at 8 Ill. Reg. 15505, effective August 10, 1984; amended at 12 Ill. Reg. 4220, effective February 9, 1988; amended at 16 Ill. Reg. 1685, effective January 14, 1992; amended at 17 Ill. Reg. 3540, effective March 2, 1993; amended at 18 Ill. Reg. 14789, effective September 20, 1994; amended at 26 Ill. Reg. 3255, effective February 19, 2002; amended at 31 Ill. Reg. 8238, effective May 25, 2007; amended at 32 Ill. Reg. 18305, effective November 14, 2008; repealed at 41 Ill. Reg. _____, effective _____.

SUBPART A: GENERAL

Section 442.110 Scope

This Part is intended to provide minimum standards for constructing and equipping new Type II school buses manufactured for use in Illinois. This Part assumes compliance with applicable Federal Motor Vehicle Safety Standards (FMVSS) (49 CFR 571), and the Society of Automotive

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Engineer Standards (SAE), and implements applicable Sections of the Illinois Vehicle Code (the Code) [625 ILCS 5/Ch. 12, Art. VIII]. In addition, this Part sets forth certain other minimum standards established by the Department, and authorized by Section 12-812 of the Code, to govern aspects not governed by the FMVSS, SAE Standards, or the Code. At the request of school bus owners and operators, a few of the requirements in this Part relate to durability and maintenance of school buses rather than safety.

Section 442.120 Definitions

"ANSI" means the American National Standards Institute (11 West 42nd Street, New York NY 10036).

"Body" means the portion of a bus that encloses the occupant and cargo spaces and separates those spaces from the chassis frame, engine compartment, driveline, and other "chassis" components, except certain chassis controls used by the driver.

"Body-on-Chassis" means a completed vehicle consisting of a passenger seating body mounted on a truck type chassis (or other separate chassis) so that the body and chassis are separate entities, although one may reinforce or brace the other.

"Child Check System" means an optional mechanical or electronic monitoring system used for ensuring that no passengers remain on the school bus at the end of a route, a work shift, or the work day. The system shall require the school bus driver to walk to the rear of the bus to deactivate the system before the driver leaves the bus. The vehicle's interior lights must illuminate when the ignition is turned off to assist the driver in seeing in and under the seats during a visual sweep of the bus. (See P.A. 95-0260, effective August 17, 2007.)

"Code" means the Illinois Vehicle Code [625 ILCS 5].

"Driver" means *every person who drives or is in actual physical control of a vehicle*. (Section 1-116 of the Code)

"Empty Weight" means the unloaded vehicle weight; i.e., the weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle but without cargo or occupant (49 CFR 571.3), plus 350 pounds allowance for driver and equipment.

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"FMVSS" means the rules and standards set forth in 49 CFR 571 and known as the Federal Motor Vehicle Safety Standards.

"Forward Control" means a configuration in which more than half of the engine length is rearward of the foremost point of the windshield base and the steering wheel hub is in the forward quarter of the vehicle length (49 CFR 571.3) – includes mid-engine and rear-engine "pusher" buses.

"Gross Vehicle Weight Rating" or "GVWR" means the value specified by the manufacturer as the loaded weight of the school bus. (See Section 1-124.5 of the Code.)

"Incomplete Vehicle" means an assemblage consisting, at a minimum, of frame and chassis structure, power train, steering system, suspension system, and braking system, to the extent that those systems are to be part of the completed vehicle, that requires further manufacturing operations (other than the addition of readily attachable components such as mirrors or tire and rim assemblies or minor finishing operations, such as painting) to become a completed school bus for use in Illinois. (Based on 49 CFR 568.3)

"Integral Type" bus means a completed vehicle either without separate body and chassis or with body and chassis joined into one unit.

"m", following a numeral, means either "meter" or "meters".

"mm", following a numeral, means either "millimeter" or "millimeters".

"Manufacturer" (unless otherwise indicated at the point of use) means the person or organization whose name follows "MANUFACTURED BY" or "MFD BY" on the label required in Section 442.130(b).

"Multiple Glazed Unit" means two or more sheets of safety glazing material separated by air spaces and assembled in a common mounting (ANSI Z26.1-1996, no later amendments or editions included).

"Passenger" means every bus occupant who is not the driver.

"SAE" means the Society of Automotive Engineers (400 Commonwealth Drive, Warrendale PA 15096).

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"School Bus" means:

Every motor vehicle, except as provided in this definition, owned or operated by or for any of the following entities for the transportation of persons regularly enrolled as students in grade 12 or below in connection with any activity of such entity:

Any public or private primary or secondary school;

Any primary or secondary school operated by a religious institution; or

Any public, private or religious nursery school.

This definition shall not include the following:

A bus operated by a public utility, municipal corporation or common carrier authorized to conduct local or interurban transportation of passengers when such bus is not traveling a specific school bus route but is:

On a regularly scheduled route for the transportation of other fare paying passengers;

Furnishing charter service for the transportation of groups on field trips or other special trips or in connection with other special events; or

Being used for shuttle service between attendance centers or other educational facilities.

A motor vehicle of the first division.

A motor vehicle designed for the transportation of not less than 7 nor more than 16 persons that is operated by or for a public or private primary or secondary school, including any primary or secondary school operated by a religious institution, for the purpose of transporting not more than 15 students to and from

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interscholastic athletic or other interscholastic or school sponsored activities. (Section 1-182 of the Code)

"SI" means Systeme International d'Unites (International System of Units); officially abbreviated SI in all languages; the modernized metric system defined in ANSI IEEE-ASTM-SI-10-1997.

The symbol " following a numeral means either "inch" or "inches".

"Type I School Bus" means *a school bus with a gross vehicle weight rating of more than 10,000 pounds.* (Section 1-213.4 of the Code)

"Type I-A School Bus" means a term commonly used by school bus manufacturers to classify a certain type of school bus that is a conversion or body constructed upon a van-type or cutaway front-section vehicle with a left side driver's door, designed for carrying more than 10 persons. The Type I-A school bus has a GVWR of more than 10,000 pounds.

"Type II School Bus" *means a school bus with a GVWR of 10,000 pounds or less.* (Section 1-213.5 of the Code)

Section 442.130 Incorporation by Reference and Certification

a) Each bus body and chassis must conform to the applicable provisions of the Federal Motor Vehicle Safety Standards (FMVSS) (49 CFR 571.1 through 571.404). Those applicable provisions of the FMVSS are incorporated by reference as that part of the FMVSS was in effect on October 1, 2007. No later amendments to or editions of 49 CFR 571 are incorporated.

b) Each bus body and chassis must conform to the applicable provisions of 49 CFR 567, Certification, and 49 CFR 568, Vehicles Manufactured in Two or More Stages, that were in effect on the first day of the month in which the chassis manufacturer completed his last manufacturing operation on the incomplete bus. Those applicable provisions are incorporated by reference as they were in effect on October 1, 2007. No later amendments to or editions of 49 CFR 567 and 49 CFR 568 are incorporated.

c) Each school bus must conform to the applicable Standards and Recommended Practices of the Society of Automotive Engineers Handbook. Those applicable

provisions of the SAE Standards and Recommended Practices are incorporated by reference as of the 2005 edition date. No later amendments to or editions of the SAE Standards and Recommended Practices are incorporated.

d) Copies of the above materials incorporated by reference are available for inspection at the Division of Traffic Safety, 3215 Executive Park Drive, 3rd Floor, Springfield, Illinois 62703 or by calling (217)785-1181. The federal standards are available on the National Archives and Records Administration's website at http://ecfr.gpoaccess.gov. The Division of Traffic Safety's rules are available on the Department's website at http://www.dot.il.gov/safety.html.

SUBPART B: CONSTRUCTION OF BODY

Section 442.205 Aisle

a) Minimum clearance of all aisles, including the aisle (or passageway) leading to an emergency door in the rear, shall be 12 inches.

b) A dedicated aisle which conforms to 49 CFR 571.217 may be adjacent to any side emergency door.

Section 442.208 Barriers, Guard

a) A restraining guard barrier shall be installed in front of the right and left front passenger seats. Barriers shall be constructed to guard passengers from being thrown into the stairwell, dash, windshield, or driver's compartment. Barriers shall be padded to give knee and head impact protection. Barriers shall conform to S5.2 through S5.2.3 of FMVSS 222. (See 92 Ill. Adm. Code 444 for exceptions for special education school buses.)

b) The vertical distance from the floor covering to the top of a barrier positioned in front of a student's seat shall measure not less than the vertical distance from the floor covering to the top of the seat back on the seat back installed behind that barrier.

Section 442.210 Body Structure and Mounting

a) See applicable provisions of the FMVSS for requirements (49 CFR 571.100 through 571.304).

b) Insulating material shall be placed at all mounting points between the body and chassis frame. This material shall be at least 5 mm (.2") thick, may have the quality of the sidewall of an automobile tire, and shall be so secured that it will not move, vibrate, or "crawl" out of place during normal operations.

c) The body front shall be attached and sealed to the chassis cowl so as to prevent the entry of water, dust, or fumes through the joint between the chassis cowl and the body.

Section 442.213 Bumper, Rear

a) The entire rear bumper must be of metal construction unless an energy absorbing bumper is used.

b) The rear bumper must meet chassis or body manufacturer's standards.

c) The rear bumper shall be shielded between the body and the bumper to prevent hitching or "riding on."

AGENCY NOTE: See Section 442.420 for front bumper requirements.

Section 442.214 Capacity, Passenger

a) *The vehicle maximum passenger capacity recommended by the manufacturer of the bus shall be based upon a provision for 13 inches of seating space for each passenger, exclusive of the driver.* (Section 12-802 of the Code) Examples: A seat 990 mm (39") in width provides 3 passenger spaces; a seat 985 mm (38.8") in width provides 2 passenger spaces; a device resembling a seat but less than 330 mm (13") in width would not provide a passenger space.

b) Neither a space not conforming to the FMVSS 222 nor the driver's space shall be counted as a passenger space. However, any space used for transporting an orthopedically challenged passenger shall be counted as a passenger space when computing passenger capacity to be displayed on the exterior of the bus as required in Section 442.250(g). (See 92 Ill. Adm. Code 444, Minimum Safety Standards for Construction of School Buses used in Special Education Transportation.)

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Section 442.215 Ceiling and Side Walls

a) The ceiling and side walls shall be thermally insulated with a fire-resistant material approved by the Underwriter's Laboratories, Inc., which shall also adequately reduce the noise level and vibrations.

b) The interior of the bus shall be free of all unnecessary projections likely to cause injury. Additional projections (e.g., external speakers, air conditioners) located within 59 inches from the floor shall be padded to prevent injury. This includes inner lining of ceiling and walls. Installation of book racks is not permissible. Interior paneling is required on the ceiling and walls. Paneling shall be of steel or other suitable material of equivalent strength and durability, applied in such a manner as to present a clean, smooth and safe interior. Exposed edges of lapped joints shall be beaded, flanged or otherwise treated and connected to reduce the likelihood of injury from exposed edges.

c) Interior height shall be a minimum of 60 inches, measured from the floor to ceiling at any point on the longitudinal center line from the front vertical bow to the rear vertical bow.

Section 442.216 Child Check System (Optional)

If a mechanical or electronic child check system is installed, the system must illuminate the interior lights on the bus when the ignition is turned off. (See P.A. 95-0260, effective August 17, 2007.)

Section 442.218 Crossing Control Arm

a) Must meet or exceed the wiring requirements of SAE Recommended Practice J1133.

b) Must be capable of full operation between, and including, the temperatures -40 degrees F and 160 degrees F.

c) The arm, when activated, must extend a minimum of five feet from the front face of the bumper.

d) The arm must be mounted on the far right side (entry side) of the front bumper.

e) Appropriate brackets shall be used to attach the arm to the front bumper for proper operation and storage.

f) All component parts must meet or exceed any applicable FMVSS in effect at the time of manufacture.

g) The arm must extend at the same time the stop arm panel extends. An independent "on/off" switch is prohibited.

h) If the driver can stop the arm from extending with the use of an optional override switch, the arm sequence must automatically reset once the service door is closed.

i) Red lights and/or red reflectors are prohibited.

Section 442.220 Defrosters

Defrosting equipment shall be installed so as to help keep the window to the left of the driver and the glass in the service door clear of fog or frost. This defrosting equipment shall conform to those FMVSS 103 (49 CFR 571.103) performance requirements that are applicable to school bus windshields.

Section 442.225 Doors (Repealed)

Section 442.230 Emergency Exits and Door Alarms

a) Each emergency exit shall be equipped with an interior opening device which may be quickly released but which is designed to offer protection against accidental release. Each exterior release handle must be nonhitchable.

AGENCY NOTE: "Nonhitchable" is defined as the rear of the bus being designed and maintained to prevent or discourage riding or grasping the rear of the bus so as to "hitch" rides.

b) All emergency exits shall conform to the applicable requirements of the FMVSS 217 (49 CFR 571.217).

1) Each opening for a required emergency exit window or door must be outlined around its exterior perimeter with, at a minimum, 1 inch (2.54 cm) wide yellow retroreflective tape. All retroreflective tape must be on

the exterior surface of the bus and conform to all requirements of 49 CFR 571.217. Emergency roof exits may be outlined in either yellow or white retroreflective tape. Yellow retroreflective tape can be located on the rear bumper or rub rail provided the space under the emergency exit door or emergency exit window is not adequate to accommodate the tape or provided rivets are present that prohibit the tape from being applied properly.

2) Both audible and visible alarms shall alert the driver when the engine is running and any emergency exit door either:

A) Is not fully latched, or

B) Is locked and not readily operated manually.

3) An audible alarm shall alert the driver when the engine is running and any emergency exit window either:

A) Is not fully latched, or

B) Is locked and not readily operated manually.

4) The engine starting system shall not operate while any emergency exit door or window (optional or required) is locked from either inside or outside the bus. "Locked" means that the release mechanism cannot be activated and the exit cannot be opened by a person at the exit without a special device such as a key or special information such as a combination.

5) An alarm cut-off or "squelch" control is prohibited.

6) Exception: No alarm is required for roof hatches.

Section 442.235 Floor Covering

a) Plywood or equivalent material may be applied over the existing steel floor and securely fastened – shall be applied if specified by the purchaser. If applied, plywood shall be at least ½" exterior BB grade.

b) All portions of the floor that come in contact with passengers' or driver's footwear

shall be covered with a waterproof material. This floor covering shall not crack when subjected to sudden temperature change and shall be bonded securely to the floor with a waterproof substance. All seams and openings shall be filled with a waterproof sealer.

c) The floor covering in the aisles and entrance area shall be of non-skid, wear-resistance type material commonly used in commercial passenger transportation vehicles.

Section 442.240 Glazing Materials

a) All glazing in the rear of a school bus, including the door, shall be the fixed type.

b) Laminated safety glass is optional. All applicable provisions of the FMVSS 205 (49 CFR 205) apply to the optional laminated safety glass and also to any plastic materials used in multiple-glazed unit, including meeting the pertinent tests indicated below, that are specified in ANSI Standard Z26.1-1996 or Z26.1a-1996 and are grouped in Table No. 1 of that Standard. Glazing shall be identified as shown below.

Glazing installed in:	Shall meet tests grouped in Z26.1 Table No. 1 under:	Shall bear one of the following identification markings:
Windshield	Item 1, either laminated glass or multiple glazed unit	AS 1 Glass
Window or door forward of rearmost location of driver's seat back		AS 1 Glass or AS 2 Glass
All Other locations		AS 1 Glass, AS 2 Glass or AS 3 Glass

c) In addition, any exposed plastic layer of a multiple glazed unit shall be identified

in conformance with the FMVSS 205 (49 CFR 571.205).

d) All glazing shall be installed so the identification markings are legible.

AGENCY NOTE: See Section 442.310, Window Openings, for window operation requirements.

Section 442.245 Heaters

a) An inside temperature of not less than 50 degrees Fahrenheit at average minimum January temperature as established by the U.S. Department of Commerce, National Weather Service Office, for the area in which the vehicle is to be operated shall be maintained throughout the bus.

b) The primary heater shall be a high output, fresh air type.

c) The secondary heater may be recirculating type, and located so as not to interfere with aisle space. Each secondary heater shall display a nameplate that identifies the manufacturer and the heater capacity rating.

d) The heater hoses shall be adequately supported to guard against excessive wear due to vibration and shall not interfere with or restrict the operation of any engine function. Any hose in the passenger compartment shall be adequately protected to prevent injury from burns in the event of rupture.

e) Auxiliary fuel-fired heating systems are permitted provided they comply with the following:

1) The auxiliary heating system fuel shall utilize the same type of fuel as specified for the vehicle engine;

2) The heater or heaters may be direct hot air or connected to the engine's coolant system;

3) An auxiliary heating system, when connected to the engine's coolant system, may be used to preheat the engine coolant or preheat and add supplementary heat to the bus' heating system;

4) Auxiliary heating systems must be installed pursuant to the manufacturer's recommendations and shall not direct exhaust in a manner that will endanger bus passengers (e.g., under windows);

5) Auxiliary heating systems that operate on diesel fuel shall be capable of operating on:

A) a hot water and/or combustion type heater; or

B) if only one heater is used, a fresh-air or combination fresh-air and recirculation type heater; or

C) blended diesel fuel without the need for system adjustment.

6) The auxiliary heating system shall be low voltage.

Section 442.250 Identification/Lettering

a) Except where otherwise required or allowed, lettering on the exterior of the body shall be black against a national school bus glossy yellow background. All required letters and numerals shall conform to Series "B", or heavier series, of the Standard Alphabets for Highway Signs issued by the Federal Highway Administration, Washington, D.C. 20591. Decals may be used instead of paint. Signs, numbers, or lettering, other than those either required by Section 12-802 of the Code or this Part shall not be affixed permanently on either the exterior or interior of the bus. Interior lettering shall contrast with its background.

b) The words "SCHOOL BUS" shall be displayed against a national school bus glossy yellow background as high as practical and approximately centered on the front and rear of the bus body, in letters at least 200 mm (8") high (see Section 12-802 of the Code). These words may be painted on or applied to the bus body or displayed on a sign firmly attached to or built into the body. The background of an illuminated sign shall approximate the national school bus glossy yellow color as closely as feasible.

c) A school bus identification number, supplied by the purchaser, shall be displayed as high as practical on the front and rear of the bus in numerals not less than 100 mm (4") high. Such number may be displayed on the sides of the bus as specified by the purchaser. As an option, identification numbers may be located on the

rooftop.

d) Either the owner's name or the school district number or both must be displayed on both sides of the bus at least four inches high, approximately centered and as high as practicable below the window line. (See Section 12-802 of the Code.) The lettering must be located on one line.

e) The body and/or chassis manufacturer's name, emblem, or other identification may be displayed, colorless or in any color, on any unglazed surface of the bus so as not to be mistaken for the name required in subsection (d) of this Section, and so as not to interfere with any required letters or numerals.

f) The words "EMPTY WEIGHT", or the abbreviation "EMPTY WT.", or the letters "E.W.", followed by the empty weight of the bus (see Section 442.120), stated in pounds, shall be displayed on the exterior of the body near the rear edge of the service entrance in numerals and letters at least 50 mm (2") high (see Section 12-802 of the Code).

Examples: EMPTY WEIGHT 16,800 lb E.W. 16,800 lb

g) The word "CAPACITY", or the abbreviation "CAP.", and the rated passenger capacity, as described in Section 442.214, followed by the word "PASSENGERS", or the abbreviation "PASS.", shall be displayed on the exterior of the body near the rear edge of the service entranceway, and on the interior above the right portion of the windshield, in numerals and letters at least 50 mm (2") high (see Section 12-802 of the Code).

h) The words "NO STANDEES" shall be displayed only on the interior above the windshield, approximately opposite the aisle but to the right of the mirror and sun visor, in letters at least 50 mm (2") high.

i) The words "EMERGENCY DOOR" or "EMERGENCY EXIT" in letters at least 5 cm (2") high must be displayed on the interior and exterior of the bus. "EMERGENCY DOOR" must be displayed at the top of, or directly above, any emergency exit door. "EMERGENCY EXIT" must be displayed at the top of, or directly above, or at the bottom of, any emergency exit window. They may be displayed on a separate colorless background (such as white, aluminum, or silver) that extends no more than 15 mm (.6") above or below the words and no more than 25 mm (1") to the right or left of the words.

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j) A black arrow, curved or straight, at least 150 mm (5.9") in length and 15 mm (.6") in width, showing the direction each exterior emergency exit release mechanism is to be moved to open the emergency exit, shall be painted or permanently affixed on the exterior yellow portion of the bus within 150 mm (5.9") of each release mechanism.

k) An arrow showing the direction each interior emergency exit release mechanism is to be moved to open the emergency exit shall be painted or permanently affixed on the interior of the bus within 150 mm (5.9") of each emergency exit release mechanism. Each interior arrow shall contrast with its background and, where suitable space is limited, may be smaller than the exterior arrow(s) but must be conspicuous.

l) Alternate Fuel

1) *If the bus uses alternate fuel (e.g., propane, CNG), the vehicle must be marked with an identifying decal. Such decal shall be diamond shaped with white or silver scotchlite letters one inch in height and a stroke of the brush at least ¼ inch wide on a black background with a white or silver scotchlite border bearing either the words or letters:*

"PROPANE" = If propelled by liquefied petroleum gas other than liquefied natural gas; or

"CNG" = If propelled by compressed natural gas. The sign or decal shall be maintained in good legible condition.

2) *The alternate fuel decal shall be displayed near the rear bumper and visible from the rear of the vehicle.* (Section 12-704.3 of the Code)

m) The vehicle's length (rounded up to nearest whole foot) must be displayed on or adjacent to the interior bulkhead clearly within the driver's view. (For example: vehicle length of 39.1 feet will be displayed as 40 feet.) Each letter or numeral must be at least two inches high and black in color. The measurement must be taken from the front bumper to the rear bumper.

n) A "Stop Line" in contrasting color is required between 5.9 and 6.1 inches below the top of each side window opening. The line shall be located between each

window that slides downward.

o) The decal described in this subsection (o) is required to be displayed on every school bus registered in Illinois. The school bus manufacturer may elect to apply the decal at the time the school bus is manufactured or the decal may be applied by the school bus owner after the school bus is purchased. A white decal with black lettering and numerals that measure one inch high must be displayed on the rear of the bus. The decal must display the words TO REPORT ERRATIC DRIVING followed by the area code and phone number of the bus owner. The decal shall be located on the rear window glazing below the rear seat back, on the bus body below the window line, or on the rear bumper. The decal must be visible to the motoring public from the rear of the bus and cannot obstruct any required lettering or numerals. The decal cannot be located on any emergency door glazing or any emergency window glazing. Magnetic signs are not allowed. (See P.A. 95-0176, effective January 1, 2008.)

p) The decals described in this subsection (p) are required to be displayed on every school bus registered in Illinois if an audio and/or visual recording will be made of the interior of the school bus. The school bus manufacturer may elect to apply the decals at the time the school bus is manufactured or the decals may be applied by the school bus owner after the school bus is purchased. Two white decals with black lettering measuring one inch high shall be displayed, one on the exterior of the service (e.g., entrance) door or on the bus body adjacent to the service door if the door is not adequate to accommodate the decal and a second on the front interior bulkhead. The decals shall serve as a notice of audio and/or visual recordings. The exterior decal must not be located on any service door glazing and the interior decal must not obstruct any other required lettering on the bulkhead. Magnetic signs are not allowed. (See P.A. 95-0352, effective August 23, 2007.)

Section 442.253 Metal Treatment

a) Unless excluded by this subsection, all steel or iron used in construction of the bus body and attached equipment shall be either resistant to atmospheric corrosion, or zinc coated, or treated by equivalent process. Particular attention shall be given to each fastener or attaching device, lapped surface, welded connection or fastening, cut edge, punched or drilled hole, surface subjected to abrasion, closed or box section, and any unvented or undrained area or space. The number of unvented or undrained areas or spaces is to be minimized.

Excluded are door handles, grab handles, and interior decorative parts.

b) As evidence that above requirements have been met, a sample of fastener, material, or section of body, coated or finished as installed in the bus, when subjected to a 1,000-hour salt spray test in accordance with American Society for Testing and Materials (ASTM) Standard B-117-1997 "Method of Salt Spray (Fog) Testing" shall not exhibit more than 10 percent reduction in weight after all adherent corrosion products are removed.

Section 442.255 Mirrors

a) Interior Mirror – A mirror shall be located inside the bus. It shall be firmly supported, constructed of clear view safety glass and securely backed and framed. It shall have rounded corners. Edges shall be padded to reduce danger of injury upon impact. The mirror shall afford the operator a good view of the bus interior and portions of the roadway to the rear.

b) All exterior mirror systems shall conform to the applicable requirements of the FMVSS 111 (49 CFR 571.111).

c) More convex mirrors than required above may be installed, if specified by the purchaser.

d) The reflecting surface on the backside of each mirror glass shall be protected from abrasion, scratching, and atmospheric corrosion.

Section 442.258 Paint/Color Requirements

a) *The exterior of each school bus shall be national school bus glossy yellow except* as indicated in subsections (b) through (i) of this Section.

b) *The rooftop may be white.* Optional white roof shall terminate at any point from top of drip rail to 6" above drip rail. The front and rear roof caps shall remain national school bus glossy yellow.

c) *Body trim, rub rails, and lettering other than on a stop signal arm shall be glossy black. Bumpers may be glossy black or a bright, light or colorless finish.*

d) *Lettering on a stop signal arm shall be white on a red background.*

e) *The hood and upper cowl may be lusterless black or lusterless school bus yellow.*

f) *Grilles on the front, lamp trim and hubcaps may be a bright finish.* Wheels and rims may be black, gray, or manufacturer's colors.

g) *The name or emblem of a manufacturer may be colorless or any color.*

h) *The exterior paint of any school bus shall match the central value, hue and chroma set forth* in this Part. (Section 12-801 of the Code)

i) Each opening for a required emergency exit window or door must be outlined around its outside perimeter with a minimum 1 inch (2.54 cm) wide yellow retroreflective tape. All retroreflective tape must be on the exterior surface of the bus and conform to all requirements of 49 CFR 571.217. Yellow retroreflective tape can be located on the rear bumper or rub rail provided the space under the emergency exit door or emergency exit window is not adequate to accommodate the tape or provided rivets are present that prohibit the tape from being applied properly. Emergency roof exits may be outlined in either yellow or white retroreflective tape.

Section 442.259 Rack, Book/Luggage

Book/luggage racks are not allowed.

Section 442.260 Rub Rails

a) There shall be one rub rail located approximately at seat level which shall extend from the rear of the entrance door on both sides to a point of curvature at the rear of the body.

b) Rub rails shall be constructed of 16-gauge longitudinally corrugated or ribbed steel, ventilated, four inches minimum width, and securely fastened to the body by bolts, rivets, or welding.

Section 442.265 Seat Belts, Driver's and Passengers'

a) See the FMVSS for requirements (49 CFR 571.209 and 210).

b) The driver's seat belt assembly shall be arranged so that all portions of the assembly remain above the floor when not in use.

c) If a retractor or retractors are installed, they shall be the emergency locking type.

d) The driver's seat must be equipped with a lap belt/shoulder harness design.

Section 442.270 Seating

a) No bus shall be equipped with "jump" or portable seats (this does not include child restraint systems).

b) The driver's seat shall be rigidly positioned and have a fore-and-aft adjustment without the use of tools or other nonattached devices.

c) A flip-up seat for passengers may be located only immediately adjacent to any side emergency door. The flip-up seat must conform to the following:

1) The seat must be designed so that, when in the folded position, the seat cushion is flat against the seat back to prevent a child's limb from becoming lodged between the seat cushion and seat back.

2) The seat must be designed to discourage a child from standing on the seat cushion when in the folded position.

3) The working mechanism under the seat must be covered to eliminate any tripping hazard.

4) All sharp metal edges on the seat must be padded to prevent any snagging hazard.

5) No portion of the door latch mechanism can be obstructed by a seat.

6) There must be at least 11.7 inches (30 cm) measured from the door opening to the seat back in front.

Section 442.275 Service Entrance and Door

a) The service entrance shall be located on the right side near the front, in

unobstructed and convenient view of the driver. The service entrance shall have a minimum vertical opening of 1.7 m (67") and a minimum horizontal opening of 610 mm (24").

b) The service entrance steps shall be designed so that the first step shall not be more than 13½" off the ground. If necessary, a step of adequate width and length shall be installed to meet this requirement. Provision shall be made to prevent road splash from the wheel from accumulating on the step if installed outside the body.

c) The service door shall be either manually or power operated by the seated driver. When in the closed and secured position, the door operating mechanism shall prevent accidental opening but shall afford prompt release and opening by the driver. No exposed parts of a door operating mechanism shall come together so as to shear or crush finger(s). The vertical closing edge(s) of a service door shall be padded to lessen chance of injury.

d) A power operated door shall be equipped for emergency manual operation in case of power failure. Instructions for emergency operation of a power operated door shall be affixed permanently on the interior of the door in letters at least 12 mm (.5") high.

e) A single-section service door shall be hinged at the front of the service entrance.

f) Glazed panels shall be installed in the service door to afford the driver a view of small children outside the door, traffic signs, and intersecting roadways. 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 each upper glass panel shall not be more than 3 inches from the top of the door.

g) Service Door Lock (Optional). If ordered by the purchaser, a lock may be installed on or at the service door. Any type service door locking system installed in the bus shall conform to at least one of the following requirements.

1) Requirement 1: A locking system shall not be capable of preventing the driver from easily and quickly opening the service door; or

2) Requirement 2: A locking system that is capable of preventing the driver from easily and quickly opening the service door shall include an audible and visible alarm to alert the driver when the engine is running and the

service door is locked. No alarm disconnect, "squelch control", or other alarm defeating or attenuating device shall be installed; or

3) Requirement 3: A locking system shall not be capable of preventing the driver from easily and quickly opening the service door except when, and only when, a person outside the bus uses a key that is not capable of locking more than one of at least 1000 of the door manufacturer's key locking systems.

h) A grab handle of steel, as long as practicable, shall be solidly attached to the left of any person entering the school bus. Forward handrails are prohibited, except when required by 92 Ill. Adm. Code 444 (Minimum Safety Standards for Construction of School Buses used in Special Education Transportation). An optional grab handle can also be located on the right side of the entranceway.

Section 442.280 Stanchion Guard Panel or Barrier Guard (Repealed)

Section 442.285 Stop Signal Arm Panel

a) A stop signal arm panel must be installed on the left side of the bus that conforms to 49 CFR 571.131. Decals may be used in lieu of painting. Strobe lamps are acceptable on stop signal arm panels. See Appendix E for example.

b) Additional stop signal arm panels may be added at the purchaser's request. Additional panels must be located on the left side of the bus. Additional panels must operate in conjunction with the required panel and meet all stop arm panel requirements except as follows. The additional panel must not contain any marking or reflective material on the front side of the panel. The additional panel must be located in the rear half of the bus adjacent to the rearmost window.

Section 442.290 Tool Compartment (Purchaser's Option)

a) A fire-resistant container of adequate strength and capacity for storage of tools, chains, curriculum equipment, activity equipment, etc., may be installed. If installed, the container shall provide reasonable security for its contents and shall be securely fastened to prevent the container or its contents from becoming accidentally dislodged.

b) If the storage container is not installed and tools, equipment, etc., are carried, each

such item must be secured to prevent its becoming dislodged and causing injury to passengers.

Section 442.295 Sun Visor

a) The driver's side shall be equipped with an interior adjustable sun visor with a minimum size of 5" X 16".

b) No sun visor shall interfere with the operator's full view of the rearview mirror(s).

c) A sun visor on the right passenger side is optional.

Section 442.300 Undercoating

The underside of the body, including floor members and the side panels below the floor, shall be coated with a fire-resistant undercoating material applied by the spray method so as to seal, insulate, reduce corrosion, and reduce interior noise. Non-metallic components need not be coated.

Section 442.305 Ventilation

The body shall be equipped with a suitable controlled ventilation system of sufficient capacity to maintain a satisfactory ratio of outside to inside air under operating conditions without opening of windows except in warm weather.

Section 442.310 Window Openings

This Section does not apply to a window or glazed panel installed forward of a front passenger seat, and is optional for a window installed either beside a rear passenger seat or a special service door or in a side emergency exit.

a) All side windows shall open from the top only and shall operate freely.

b) There shall be one vertical opening side window for each seat.

c) Each side window shall provide an unobstructed emergency egress opening at least 9 inches high and 22 inches wide. The opening may extend to 18 inches above the unoccupied passenger seat cushion but no closer (to the seat cushion).

d) A stop line for the window opening shall be applied six inches from the top of the window opening.

e) The side windows may be split sash.

f) The window latches shall be recessed.

AGENCY NOTE: See Section 442.240 for glazing material requirements.

Section 442.315 Windshield

See the FMVSS for requirements (49 CFR 571.104).
The windshield may be tinted and may have a "shade band".

Section 442.320 Windshield Wipers

See the FMVSS for requirements (49 CFR 571.104).

Section 442.325 Windshield Washer

See the FMVSS for requirements (49 CFR 571.104).

SUBPART C: CHASSIS REQUIREMENTS

Section 442.405 Air Cleaner

The bus shall be equipped with an adequate oil bath, dry element, or equivalent type air cleaner.

Section 442.410 Axles

a) Must meet federal chassis requirements as indicated on the federal certification label as required by 49 CFR 567 (Certification) and 49 CFR 568 (Vehicles Manufactured in Two or More Stages).

b) Wheel base shall not be less than 123 inches.

Section 442.415 Brakes

See the FMVSS for requirements (49 CFR 571.105).

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Power brakes are required.

Section 442.420 Bumper, Front

a) The front bumper shall meet the chassis manufacturer's standards.
b) The entire front bumper must be of metal construction unless an energy absorbing bumper is used.

AGENCY NOTE: See Section 442.213 for rear bumper requirements.

Section 442.425 Drive Shaft Guard

Each segment of the drive shaft shall be equipped with a suitable guard to prevent accident or injury in the event of its fracture or disconnection.

Section 442.430 Engine

Type and displacement may be specified by the purchaser.

Section 442.435 Exhaust System and Muffler

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

AGENCY NOTE: As mandated by the United States Environmental Protection Agency (USEPA), diesel-powered engines manufactured after December 31, 2006 are required to meet stricter standards that will reduce emissions of particulate matter and nitrogen oxides into the atmosphere. School bus manufacturers may be required to modify exhaust systems to meet the USEPA requirements, e.g., mufflers may be replaced with after-treatment devices that significantly reduce toxins released into the atmosphere. Modifications to exhaust systems made in compliance with the USEPA requirements are acceptable provided they do not impact the safe operation of the school bus.

b) The exhaust system shall be insulated from any insulated wire, flammable material, brake hose or line, or fuel system component by a securely attached metal shield at any point where the exhaust system is 11.8 inches (300 mm) or less (four inches (101.6 mm) or less if diesel powered engine) from the components listed in this subsection.

c) The tail pipe may meet the chassis manufacturer's standard configuration. However, the tail pipe shall not exit beneath any fuel filler location or beneath any emergency exit door.

d) The tail pipe shall extend out to, but not more than, 1 inch (25.4 mm) beyond the perimeter of the body or the bumper.

e) The shielding of engine compartment components shall be governed by the chassis manufacturer's standards.

f) Each gas conducting component that is not of stainless steel shall be of commercial heat and corrosion resistant exhaust system material and shall be nonflexible.

Section 442.440 Frame

After the date of manufacture of the incomplete vehicle, the chassis frame shall not be altered so as to extend the wheelbase. Other extension(s) of the chassis frame may be accomplished only by the incomplete vehicle, intermediate, or final-stage manufacturer or by an agent of the manufacturer properly instructed and authorized by the manufacturer to make the extension(s).

Section 442.445 Fuel Tank

a) See the FMVSS for requirements (49 CFR 571.301).

b) The fuel tank shall have a minimum capacity of 24 gallons.

Section 442.450 Heater Connections

Each heater installation shall include two shut off valves as close to the engine inlet and outlet connections as practicable.

Section 442.455 Horn

The bus shall be equipped with at least one horn *capable of emitting sound audible under normal conditions from a distance of not less than 200 feet.* (Section 12-601 of the Code) The horn shall be conveniently controlled from the operator’s position and tested in accordance with SAE Standard J377.

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Section 442.460 Ignition Lock

A key type lock or other device shall be provided to prevent the vehicle from being set in motion or its engine started by unauthorized persons.

Section 442.465 Instruments

The bus shall be equipped with the following nonglare illuminated instruments and gauges mounted for easy maintenance and repair and in such a manner that each is clearly visible to the seated operator. An indicator light in lieu of a pressure or temperature gauge is permissible.

a) Speedometer

b) Odometer

c) Fuel Gauge

d) Oil Pressure Gauge

e) Water Temperature Gauge

f) Ampere Meter or Volt Meter with graduated charge and discharge indications

Section 442.470 Oil Filter

An oil filter of replaceable element type or cartridge type or disposable type shall be provided. The oil filter shall have an oil capacity of at least one quart.

Section 442.475 Shock Absorbers

Two front and two rear heavy-duty double-acting shock absorbers or equivalent damping devices shall be provided.

Section 442.480 Springs and Suspension

Each spring and other component in any of the suspension systems shall be capable of supporting its share of the rated gross axle weight during normal operations.

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Section 442.485 Steering Mechanism

a) The steering gear shall provide safe and accurate performance at maximum load and speed and shall be easily adjusted. Only changes approved by the chassis manufacturer shall be permitted.

b) Power steering is the purchaser's option.

Section 442.490 Tires and Wheels

a) See the FMVSS for requirements (49 CFR 571.120).

b) Wheels and rims may be black, gray or manufacturer's colors.

c) A spare tire is the purchaser's option. If the spare tire is carried inside it shall be securely mounted so that it in no way interferes with the passenger seating accommodations, the emergency door operations or aisle space.

Section 442.495 Transmissions

a) A manual shift transmission shall be fully synchronized in all forward gears. It shall provide for at least three forward and one reverse speeds.

b) An automatic transmission is the purchaser's option.

SUBPART D: ELECTRICAL SYSTEMS REQUIREMENTS

Section 442.605 Battery and Battery Compartment

a) The storage battery shall be a nominal 12-volt type. It shall be of sufficient capacity to supply all electrical requirements but shall be rated, as specified in SAE Standard J537, not less than either 70-ampere hours at the 20-hour discharge rate or 105-minutes at the 25-ampere discharge rate.

b) When the battery is mounted outside the engine compartment, it shall be attached securely in a closed, weather-tight, and vented compartment that is located and arranged so as to provide for convenient routine servicing. The battery compartment door, or cover, shall be secured by an adequate manually-operated latch or fastener. Each electrical cable connecting the battery in this compartment

to the body or chassis shall be one piece between the battery terminal connector and the first body or chassis terminal connector.

Section 442.610 Generator or Alternator

The generator or alternator with rectifier shall have a maximum output of at least 55-amperes (in accordance with SAE rating) and shall be ventilated and voltage controlled and, if necessary, current controlled and shall be capable of supplying all electrical requirements. The purchaser should specify a larger generator or alternator if needed under his/her operating conditions.

Section 442.615 Lamps, Reflectors, and Signals

a) See the FMVSS for requirements (49 CFR 571.108). Light Emitting Diode (LED) lamps that meet applicable FMVSS or SAE Standards or SAE Recommended Practices are acceptable.

b) Alternately Flashing Signal Lamps. Each bus shall be equipped with an eight lamp alternately flashing signal system that conforms to S5.1.4(b) of the FMVSS 108 (49 CFR 571.108) and Section 12-805 of the Code. A separate circuit breaker and a master switch shall be provided for this signal system. When in its "off" position, this master switch shall prevent operation of the eight lamp system; shall prevent operation of any lamps mounted on the stop signal arm panel required under subsection (hh); and shall prevent operation of any electrically controlled mechanism that would cause the stop signal arm panel to extend. The controls for the eight lamp flashing signals, the stop signal arm panel, and the service entrance door shall be arranged so as to provide for the following sequence of operations while the engine is running:

1) Place the alternately flashing signal system master switch in its "off" position. Close and secure the service entrance door. Actuate the alternately flashing signal system hand or foot control. The alternately flashing signal lamps of either yellow (amber) or red color shall not go on.

2) With the master switch "off" and the hand or foot control actuated, open the service door. The alternately flashing signals of either color shall not go on and the stop signal arm panel shall not extend.

3) Deactivate the hand or foot control. Place the alternately flashing signal system master switch in its "on" position. Close and secure the service

door. Then open the service door. The alternately flashing signal lamps of either color shall not go on and the stop signal arm panel shall not extend.

4) Close and secure the service door. Actuate the alternately flashing signal system by hand or foot control. A yellow pilot lamp in the view of the driver and the yellow alternately flashing signals shall go on.

5) Desecure but do not open the service door. The yellow pilot and the yellow alternately flashing signals shall go off. A red pilot lamp in the view of the driver and the red alternately flashing signals shall go on. The stop signal arm panel shall extend.

6) Fully open the service door. The red pilot and red signals shall remain on and the stop arm shall remain extended.

7) Close but do not secure the service door. The red pilot and red signals shall remain on and the stop arm shall remain extended.

8) Open the service door. The red pilot and red signals shall remain on and the stop arm shall remain extended.

9) Close and secure the service door. The red pilot and red signals shall go off and the stop arm shall retract.

10) Open the service door. Alternately flashing signals of either color shall not go on and the stop arm shall not extend.

c) Interior Lighting. A minimum of two interior dome lamps shall be installed to adequately illuminate the entire aisle, the emergency passageway, and the stepwell. At least the nosings of the service entrance steps and the floor around the stepwell shall be illuminated automatically by opening of the service door. No lamp shall be installed at or near the eye level of a pupil moving through the service entranceway to the aisle unless such lamp does not shine directly into the eyes of any such pupil. For buses designed to transport 33 or more passengers, at least two interior illumination lamps shall be installed.

d) Rear Turn Signals. Yellow turn signal lamps shall be mounted on the rear as far apart as practical and as high as practical but below the rear window. The

effective projected illuminated area of these turn signal lamps shall be no less than required for the yellow alternately flashing signal lamps required under subsection (b) of this Section; i.e., .0122 m^2 (19 in^2).

e) Side Turn Signals. Two yellow side turn signal lamps conforming to SAE J914 shall be installed on each bus designed to transport 33 or more passengers. The lamps shall be "armored" and mounted on the body between the rub rails required in Section 442.260. The right lamp shall be within 1 m (39.4") of the rear of the service entrance. The left lamp shall be approximately the same distance from the front bumper as the right lamp.

f) Stop Signals. Red stop lamps shall be mounted on the rear as far apart as practical but closer to the vertical centerline of the bus than the rear turn signal lamps required in subsection (d) of this Section, and at the same height as those turn signal lamps. The effective projected illuminated area of these stop lamps shall be no less than required for the red alternately flashing signal lamps required under subsection (b) of this Section, i.e., .0122 m^2 (19 in^2).

g) Strobe:

1) *One per bus;*

2) *Shall emit white or bluish-white light;*

3) *Shall be visible from any direction;*

4) *Shall flash 60 to 120 times per minute;*

5) *Shall be visible in normal sunlight;*

6) *Mounted at or behind center of rooftop and equal distance from each side. Distance from rear will be calculated by measuring height of filament and multiplying same by 30 inches* (i.e., filament height measured from the base of the strobe x 30 = distance from rear of bus where lamp is to be located). (Section 12-815 of the Code)

7) If a roof exit, air conditioner, or the size of the bus interferes with the placement of a strobe as required by subsection (g)(6), the strobe can be placed to the rear of the roof exit or air conditioner as near as practicable

above the rear axle and horizontally centered between the rear tires.

h) Reflectors.

1) Front:

A) *Two yellow rigid or sheet type (tape) front reflex reflectors shall be attached securely and as far forward as practicable.* (Section 12-202 of the Code)

B) The front reflectors shall be located between 15 and 60 inches above the roadway at either fender, cowl, or body and installed so as to mark the outer edge of the maximum width of the bus.

C) No part of the required reflecting material may be obscured by a lamp, mirror, bracket, or any other portion of the bus. No part of the required reflecting material may be more than 11.8 inches (300 mm) inboard of the outer edge of the nearest rub rail (12 inches on a bus with chassis manufactured in March 1977 or earlier).

D) The reflector may be any shape (e.g., square, rectangle, circle, oval, etc.). A rigid type reflex reflector may be any size if permanently marked either DOT, SAE A, or SAE J 594; otherwise, it shall display at least seven square inches of reflecting material (about 3 inch diameter if a solid circle).

E) A sheet type (tape) reflex reflector may conform to the surface on which it is installed but its forward projected reflecting area shall be at least eight square inches.

F) Exception: Buses that measure less than 80 inches wide are exempt. (49 CFR 571.108)

2) Left Side:
One amber no more than 12 inches from the front and one red no more than 12 inches from the rear. Mounted at a height not less than 15 inches and not more than 60 inches above the surface of the road. (Section 12-202 of the Code) On buses 20 feet or more in length, one amber as near center as practicable must also be provided. Reflectors must measure a

minimum three inches in diameter.

3) Right Side:
One amber no more than 12 inches from the front and one red no more than 12 inches from the rear. Mounted at a height not less than 15 inches and not more than 60 inches above the surface of the road. (Section 12-202 of the Code) On buses 20 feet or more in length, one amber as near center as practicable must also be provided. Reflectors must measure a minimum three inches in diameter.

4) Rear:

A) *Two red reflectors on rear body within 12 inches of lower right and lower left corners.* (Section 12-202 of the Code) Minimum three inches in diameter.

B) Exception: Buses that measure less than 80 inches wide are exempt. (49 CFR 571.108)

AGENCY NOTE: See Section 442.258 for retroreflective tape requirements.

Section 442.620 Wiring

a) See the FMVSS for requirements (49 CFR 571).

b) All wiring for lamps and other electrical devices shall be as recommended for automobiles, motor coaches, and heavy duty starting motor circuits in SAE Recommended Practices J1292 and J541a and in other practices or standards referenced in the SAE Recommended Practices, unless specifically preempted by the FMVSS or this Part.

c) Manufacturer's circuit arrangements are acceptable; however, a separate circuit for the alternately flashing signal lamps and stop signal arm lamps shall be installed.

d) Extra fuses for each size of fuse used on the bus may be conveniently mounted on the bus body if specified by the purchaser.

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e) A noise suppression switch that is capable of turning off noise producing accessories, including, but not limited to, heater blowers, defroster fans, auxiliary fans and radios, must be present. (See Section 12-815.2 of the Code.)

SUBPART E: EQUIPMENT REQUIREMENTS

Section 442.705 Fire Extinguisher (Purchaser's Option)

a) The bus shall be equipped with a dry-chemical gauge-type fire extinguisher, mounted in a bracket of automotive type and located in the driver's compartment in full view of and readily accessible to the driver.

b) The fire extinguisher shall be of a type approved by the Underwriter's Laboratories, Inc., with a rating of not less than 10-BC. The operating mechanism shall be sealed with a type of seal that will not interfere with the use of the fire extinguisher. Halon fire extinguishers rated at 10-BC are approved.

Agency Note: At least one fire extinguisher MUST be carried in each school bus transporting pupils but the purchaser may elect to install his own extinguisher which conforms to this Section after the bus is purchased.

Section 442.710 First-Aid Kit (Purchaser's Option)

a) The bus shall either carry or provide for a first-aid kit, removable and readily identifiable and mounted in full view in an accessible place in the driver's compartment.

b) Contents of Kit: The kit shall not contain a tourniquet or any type of medicine. The kit shall contain at least the items specified below, in at least the specified quantities:

1) Unit Type – Minimum Contents

A)	4" bandage compress	* 2 packages
B)	2" bandage compress	* 2 packages
C)	1" adhesive compress	1 package
D)	40" triangular bandage with two safety pins	1 package
	Wire or wood splint	1 package

* May be longer or wider

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NOTICE OF PROPOSED REPEALER

AGENCY NOTE: A first-aid kit must be carried in each school bus transporting pupils but the purchaser may elect to install his own first-aid kit which conforms to this Section.

Section 442.715 Warning Devices (Optional)

AGENCY NOTE: School buses weighing more than 8,000 pounds and operated upon any highway outside an urban district must carry warning devices, but the bus purchaser may elect to install the warning devices after the bus is purchased.

a) The warning devices must be securely stored. The warning devices required for use when lighted lamps are required (see Section 12-201(b) of the Code) shall consist of:

1) At least three liquid-burning flares and three red-burning 15-minute fusees; or

2) Three red electric lanterns; or

3) Three portable red emergency reflectors that meet FMVSS 125.

b) In addition, the following warning devices are also required for use when lighted lamps are not required (see Section 12-201(b) of the Code):

1) Two red cloth flags (not less than 12 inches square with standards to support flags); or

2) Two portable emergency reflectors that meet FMVSS 125. (The reflectors in subsection (a)(3) of this Section qualify for this option.) (See Section 12-702(a) and (c) of the Code.)

Section 442.APPENDIX A Hexagon Shaped Stop Signal Arm (Repealed)

Section 442.APPENDIX B Federal Motor Vehicle Safety Standards (FMVSS) and Related Rules (Repealed)

Section 442.APPENDIX C Specification Sheet for Reflective Material -- Encapsulated Lens (Based on FHWA Notice N 5040.17, June 15, 1976) (Repealed)

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NOTICE OF PROPOSED REPEALER

Section 442.APPENDIX D Sheeting and Tape, Reflective: Nonexposed Lens (Repealed)

Section 442.APPENDIX E Octagon Shaped Stop Signal Arm